

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 14.02.95

Test oil : ISO 4113

Part no. : 0 460 494 386

Pump designation : VE4/9F2150R474-2

Customer-spec. information

Customer : PSA

Motor : XUD11ATE-L/BVA

Power KW : 78.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return

temperature °C : 45

Tolerance °C : 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35

Tolerance bar : 0.05

Test nozzle holde
assembly

: 1 688 901 022

Opening pressure

bar : 130

Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00

x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Setting mm : 2.5

Tolerance mm : 0.2

Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Setting hPa : 5.3

Tolerance hPa : 0.3

Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 61.5

Tolerance
cm3/1000 strokes : 0.5

Spread
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 2.5

Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500

Del. quantity
cm3/1000 strokes : 43.0

Tolerance
cm3/1000 strokes : 0.5

Spread
cm3/1000 strokes : 2.5

Shutoff solenoid
Volt : 12

Check tolerance
cm3/1000S. : 2.5

Check tolerance
cm3/1000S. : 2.5

HOUSING--FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550

Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2250
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 77.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
SV travel mm : 5.9
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 1.3
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.4
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6
Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s : 20.8

Check tolerance
ccm/10s : 20.8
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0

Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 37.0
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 8.0
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 400

LDA/
 HBA stroke mm : 7,1
 Del. quantity
 cm³/1000 strokes : 56.5
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 56.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 62.0
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 61.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 61.5
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 2.3
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

IDLE DELIVERY

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 25.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 40.5
Tolerance
cm³/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7,1

A04

Dimension K mm : 3,3
Tolerance mm : +0,1
Dimension KF mm : 5,4
Tolerance mm : +0,2
Dimension MS mm : 1,1
Tolerance mm : +0,2

MICROSWITCH SET

mm : 0,8...3,0
: ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.10.95
Test oil : ISO 4113
Part no. : 0 460 494 337
Pump designation : VE4/9F2175R504

Customer-spec. information
Customer : PSA
Motor : DJ 5 2.4 L X2/30

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,82
Tolerance mm : $\pm 0,02$
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.0
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Setting hPa : 6.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 3.5
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY
CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY
SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -14.5
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.3
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 900

SV travel mm : 1.0
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Supply pump
pressure bar : 7.8
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Supply pump
pressure bar : 4.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6
Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2
Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2825
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Del. quantity
 cm3/1000 strokes : 44.0
 Tolerance
 cm3/1000 strokes : 1.0
 Check tolerance
 cm3/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Del. quantity
 cm3/1000 strokes : 41.5
 Tolerance
 cm3/1000 strokes : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 42.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 42.0
 Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

A07

Rated speed rpm : 2100
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -17.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 5.0

Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.3
Tolerance
cm³/1000 strokes : 0.1
Check tolerance
cm³/1000S. : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm : 0.6
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 70.0

Tolerance
cm³/1000 strokes : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm : +0,1
Dimension KF mm : 6,0
Tolerance mm : +0,2
Dimension MS mm : 1,0
Tolerance mm : +0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,7..38,7
Control lever
position YB mm : 63,3..74,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.10.95
Test oil : ISO 4113
Part no. : 0 460 494 429
Pump designation : VE4/9F2175R504-1

Customer-spec. information

Customer : PSA
Motor : DJ 5
Power KW : 62.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

A09

Plunger stroke mm : 0,82
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.0
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Setting hPa : 6.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 42.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 475
Del. quantity
cm3/1000 strokes : 3.5
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 13.0
Tolerance
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -14.5
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.3
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 900

SV travel mm : 1.0
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Supply pump
pressure bar : 7.8
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Supply pump
pressure bar : 4.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2825
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Del. quantity
 cm3/1000 strokes : 44.0
 Tolerance
 cm3/1000 strokes : 1.0
 Check tolerance
 cm3/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Del. quantity
 cm3/1000 strokes : 41.5
 Tolerance
 cm3/1000 strokes : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 42.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 42.0
 Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2100
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -17.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 5.0

Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.3
Tolerance
cm³/1000 strokes : 0.1
Check tolerance
cm³/1000S. : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm : 0.6
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 70.0

Tolerance
cm³/1000 strokes : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm : +0,1
Dimension KF mm : 6,0
Tolerance mm : +0,2
Dimension MS mm : 1,0
Tolerance mm : +0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,7..38,7
Control lever
position YB mm : 63,3..74,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.06.96
Test oil : ISO 4113

Part no. : 0 460 414 159
Pump designation : VE4/11F2000R509-4

Customer-spec. information
Customer : ROVER
Motor : GEMINI 3
Power KW : 83.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 55

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 116

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,45
Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000

Setting mm : 3.6
Tolerance mm : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000

Setting hPa : 6.8
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 66.2
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 37.8
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 24
Check tolerance
cm³/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 350

Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 4.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 52.5
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 98.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 24

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 2000
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 24

SETTING GRAD. STARTING FUEL DELIVERY FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000

Aneroid pressure
hPa : 1000
SV travel mm : 6.4
Tolerance mm : 0.4
Check
tolerance mm : 0.9
Shutoff solenoid
Volt : 24

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000

SV travel mm : 2.1
Tolerance mm : 0.4
Check
tolerance mm : 0.9
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.1
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000

OVERFLOW QUANTITY

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 24

Rated speed rpm : 2000

Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 125.0
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.5
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 2400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 2600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Aneroid pressure
hPa : 300

LDA/
HBA stroke mm : 6.4
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 3.2

Shutoff solenoid
Volt : 24

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 65.2
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 63.3
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 66.2
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5

Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Shutoff solenoid
 Volt : 24

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 39.0
 Tolerance
 cm3/1000 strokes : 1.0
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 350
 Del. quantity
 cm3/1000 strokes : 50.0
 Tolerance
 cm3/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 200
 Del. quantity
 cm3/1000 strokes : 115.0
 Tolerance
 cm3/1000 strokes : 25.0
 Shutoff solenoid
 Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
 HBA stroke mm : 6.4
 Dimension K mm : 3,3
 Tolerance mm : $\pm 0,1$
 Dimension KF mm : 8,4
 Tolerance mm : $\pm 0,2$
 MS1 dimension mm : 1,45
 Tolerance mm : $\pm 0,15/-0,1$

POTENTIOMETER SET

1. measurement
 voltage Volt : 5,0
 1. measurement
 voltage Volt : 3,1

MICROSWITCH SET

: ARF 12,0

CONTROL LEVER POSITION SET

Control lever
 position YA mm : 42,3..46,3
 Control lever
 position YB mm : 50,0..61,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.09.95
Test oil : ISO 4113
Part no. : 0 460 494 341
Pump designation : VE4/9F2250R513

Customer-spec. information
Customer : PSA
Motor : XUD 9 TF-Y
Power KW : 67.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

A17

Plunger stroke mm : 0,3
Tolerance mm : +-0,02
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting mm : 3.6
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting hPa : 5.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 37.0
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING
RESIDUAL QUANTITY SETTING

Rated speed rpm : 490
Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY
CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY
SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
SV travel mm : 6.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2375
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 6.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 350
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.1
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 48.3
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250

Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 54.0

Tolerance
 cm³/1000 strokes : 0.5

Check tolerance
 cm³/1000S. : 2.2

Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2000

Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 strokes : 1.5

Check tolerance
 cm³/1000S. : 1.5

Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 440

Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 strokes : 1.5

Check tolerance
 cm³/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 440

Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 strokes : 1.5

Check tolerance
 cm³/1000S. : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250

Del. quantity
 cm³/1000 strokes : -13.0

Tolerance
 cm³/1000 strokes : 2.0

Check tolerance
 cm³/1000S. : 5.0

Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250

Del. quantity
 cm³/1000 strokes : -1.0

Tolerance
 cm³/1000 strokes : 0.1

Check tolerance
 cm³/1000S. : 0.1

Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250

Del. quantity
 cm³/1000 strokes : 5.0

Tolerance
 cm³/1000 strokes : 3.0

Check tolerance
 cm³/1000S. : 3.0

Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250

Supply pump
 pressure bar : -1.1

Tolerance hPa : 0.2

Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250

Tolerance mm : 0.2

Check
 tolerance mm : 0.7

Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 17.8
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,0
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,2
Tolerance mm : $\pm 0,2$

MICROSWITCH SET

mm : 0,8...3,0
: ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.09.95
Test oil : ISO 4113
Part no. : 0 460 494 371
Pump designation : VE4/9F2250R513-1

Customer-spec. information
Customer : PSA
Motor : XUD 9 TF/Y
Power KW : 66.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

A22

Plunger stroke mm : 0,3
Tolerance mm : +-0,02
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting mm : 3.6
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting hPa : 5.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 37.0
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING
RESIDUAL QUANTITY SETTING

Rated speed rpm : 490
Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY
CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY
SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
SV travel mm : 6.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000

Supply pump
 pressure bar : 4.3
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s : 41.6

Check tolerance
 ccm/10s : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 14.0
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2375
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 39.0
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 3.0
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 350

LDA/
 HBA stroke mm : 5,9
 Del. quantity
 cm³/1000 strokes : 46.0
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2150
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 50.1
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 52.0
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 48.3
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 3.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 440
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 440
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -13.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 strokes : 0.1
Check tolerance
cm³/1000S. : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -1.1
Tolerance hPa : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm : 0.2
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 23.8
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5,9
Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,0
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,3
Tolerance mm : $\pm 0,2$

MICROSWITCH SET

mm : 0,8...3,0
: ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 28,8..32,8

Control lever
position YB mm : 69,2..80,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.09.95
Test oil : ISO 4113

Part no. : 0 460 494 383
Pump designation : VE4/9F2250R513-2

Customer-spec. information

Customer : PSA
Motor : XUD 9 TF-Y
Power KW : 66.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting mm : 3.6
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting hPa : 5.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 490
Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 strokes : 0.5

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
SV travel mm : 6.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150

Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2375
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 350

LDA/
HBA stroke mm : 5,9
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.1
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 48.3
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 54.0

Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 440
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 440
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -13.0
 Tolerance
 cm3/1000 strokes : 2.0

Check tolerance
 cm3/1000S. : 5.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -1.0
 Tolerance
 cm3/1000 strokes : 0.1
 Check tolerance
 cm3/1000S. : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Supply pump
 pressure bar : -1.1
 Tolerance hPa : 0.2
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm : 0.2
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 17.8
 Tolerance
 cm3/1000 strokes : 1.0
 Check tolerance
 cm3/1000S. : 4.0

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5,9
Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,0
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,3
Tolerance mm : $\pm 0,2$

MICROSWITCH SET

mm : 0,8...3,0
: ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 28,8..32,8

Control lever
position YB mm : 69,2..80,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.09.95
Test oil : ISO 4113

Part no. : 0 460 494 384
Pump designation : VE4/9F2250R513-3

Customer-spec. information

Customer : PSA
Motor : XUD 9 TF/Y
Power KW : 66.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting mm : 3.6
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting hPa : 5.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 37.0
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 490
Del. quantity
cm3/1000 strokes : 8.5
Tolerance
cm3/1000 strokes : 0.5

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
SV travel mm : 6.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000

SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150

Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2375
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 350

LDA/
HBA stroke mm : 5,9
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 51.5
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 48.3
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 54.0

Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 440
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 440
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -13.0
 Tolerance
 cm3/1000 strokes : 2.0

Check tolerance
 cm3/1000S. : 5.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -1.0
 Tolerance
 cm3/1000 strokes : 0.1
 Check tolerance
 cm3/1000S. : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Supply pump
 pressure bar : -1.1
 Tolerance hPa : 0.2
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm : 0.2
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 17.8
 Tolerance
 cm3/1000 strokes : 1.0
 Check tolerance
 cm3/1000S. : 4.0

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5,9
Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,0
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,3
Tolerance mm : $\pm 0,2$

MICROSWITCH SET

mm : 0,8...3,0
: ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 25,8..29,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.10.95
Test oil : ISO 4113

Part no. : 0 460 494 423
Pump designation : VE4/9F2250R513-4

Customer-spec. information

Customer : PSA
Motor : XUD 9 TF/L EGR
Power KW : 66.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting mm : 3.6
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting hPa : 5.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 37.0
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 490
Del. quantity
cm3/1000 strokes : 8.5
Tolerance
cm3/1000 strokes : 0.5

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
SV travel mm : 6.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000

SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s : 41.6

Check tolerance
 ccm/10s : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 14.0
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2375
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 39.0
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 3.0
 Tolerance
 cm³/1000 strokes : 3.0

Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 350

LDA/
 HBA stroke mm : 5,9
 Del. quantity
 cm³/1000 strokes : 46.0
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2150
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 50.5
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 51.5
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 48.3
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000

| | |
|--------------------|------|
| Del. quantity | |
| cm3/1000 strokes : | 54.0 |
| Tolerance | |
| cm3/1000 strokes : | 0.5 |
| Check tolerance | |
| cm3/1000S. : | 2.2 |
| Shutoff solenoid | |
| Volt : | 12 |

MECHANICAL SHUTOFF

| | |
|--------------------|------|
| Rated speed rpm : | 2000 |
| Aneroid pressure | |
| hPa : | 1000 |
| Del. quantity | |
| cm3/1000 strokes : | 1.5 |
| Tolerance | |
| cm3/1000 strokes : | 1.5 |
| Check tolerance | |
| cm3/1000S. : | 1.5 |
| Shutoff solenoid | |
| Volt : | 12 |

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

| | |
|--------------------|-----|
| Rated speed rpm : | 440 |
| Del. quantity | |
| cm3/1000 strokes : | 1.5 |
| Tolerance | |
| cm3/1000 strokes : | 1.5 |
| Check tolerance | |
| cm3/1000S. : | 1.5 |

FULL-LOAD STOP CONTROL LEVER

| | |
|--------------------|-----|
| Rated speed rpm : | 440 |
| Del. quantity | |
| cm3/1000 strokes : | 1.5 |
| Tolerance | |
| cm3/1000 strokes : | 1.5 |
| Check tolerance | |
| cm3/1000S. : | 1.5 |

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

| | |
|--------------------|-------|
| Rated speed rpm : | 1250 |
| Del. quantity | |
| cm3/1000 strokes : | -13.0 |

| | |
|--------------------|-----|
| Tolerance | |
| cm3/1000 strokes : | 2.0 |
| Check tolerance | |
| cm3/1000S. : | 5.0 |
| Shutoff solenoid | |
| Volt : | 12 |

TIMING-DEVICE TRAVEL DIFFERENCE

| | |
|--------------------|------|
| Rated speed rpm : | 1250 |
| Del. quantity | |
| cm3/1000 strokes : | -1.0 |
| Tolerance | |
| cm3/1000 strokes : | 0.1 |
| Check tolerance | |
| cm3/1000S. : | 0.1 |
| Shutoff solenoid | |
| Volt : | 12 |

DELIVERY DIFFERENCE

| | |
|--------------------|------|
| Rated speed rpm : | 1250 |
| Del. quantity | |
| cm3/1000 strokes : | 5.0 |
| Tolerance | |
| cm3/1000 strokes : | 3.0 |
| Check tolerance | |
| cm3/1000S. : | 3.0 |
| Shutoff solenoid | |
| Volt : | 12 |

PRESSURE DIFFERENCE

| | |
|-------------------|------|
| Rated speed rpm : | 1250 |
| Supply pump | |
| pressure bar : | -1.1 |
| Tolerance hPa : | 0.2 |
| Shutoff solenoid | |
| Volt : | 12 |

TIMING-DEVICE TRAVEL DIFFERENCE

| | |
|-------------------|------|
| Rated speed rpm : | 1250 |
| Tolerance mm : | 0.2 |
| Check | |
| tolerance mm : | 0.7 |
| Shutoff solenoid | |
| Volt : | 12 |

EXHAUST-GAS RECIRCULATION

| | |
|--------------------|------|
| Rated speed rpm : | 1250 |
| Aneroid pressure | |
| hPa : | 1000 |
| Del. quantity | |
| cm3/1000 strokes : | 17.8 |
| Tolerance | |
| cm3/1000 strokes : | 1.0 |

Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5,9
Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,0
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,3
Tolerance mm : $\pm 0,2$

MICROSWITCH SET

: ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 25,8..29,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 23.10.95

Test oil : ISO 4113

Part no. : 0 460 494 430

Pump designation : VE4/9F2250R513-5

Customer-spec. information

Customer : PSA

Motor : XUD 9 TF/X3

Power KW : 66.0

TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C : 45

Tolerance °C : 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35

Tolerance bar : 0.05

Test nozzle holde

assembly : 1 688 901 022

Opening pressure

bar : 130

Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00

x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Setting mm : 3.6

Tolerance mm : 0.2

Shutoff solenoid

Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Setting hPa : 5.6

Tolerance hPa : 0.3

Shutoff solenoid

Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 54.0

Tolerance
cm³/1000 strokes : 0.5

Spread
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.0

Shutoff solenoid

Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 37.0

Tolerance
cm³/1000 strokes : 0.5

Shutoff solenoid
Volt : 12

Check tolerance
cm³/1000S. : 3.0

HOUSING-FIXED IDLE SPRING

RESIDUAL QUANTITY SETTING

Rated speed rpm : 490

Del. quantity
cm³/1000 strokes : 8.5

Tolerance
cm³/1000 strokes : 0.5

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
SV travel mm : 6.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150

Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2375
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0

Shutoff solenoid
Volt : 12
Rated speed rpm : 750
Aneroid pressure
hPa : 350

LDA/
HBA stroke mm : 5,9
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.1
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 48.3
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 54.0

Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 440
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 440
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -13.0
 Tolerance
 cm3/1000 strokes : 2.0

Check tolerance
 cm3/1000S. : 5.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -1.0
 Tolerance
 cm3/1000 strokes : 0.1
 Check tolerance
 cm3/1000S. : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Supply pump
 pressure bar : -1.1
 Tolerance hPa : 0.2
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm : 0.2
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 17.8
 Tolerance
 cm3/1000 strokes : 1.0
 Check tolerance
 cm3/1000S. : 4.0

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5,9
Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,0
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,3
Tolerance mm : $\pm 0,2$

MICROSWITCH SET

: ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 28,8..32,8

Control lever
position YB mm : 69,2..80,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 24.06.96
 Test oil : ISO 4113
 Part no. : 0 460 416 056
 Pump designation : VE6/11F1500R55-9

Customer-spec. information
 Customer : MAN
 Motor : D 0226 MF
 Power KW : 100.0

TEST BENCH REQUIREMENTS

Calibrating-oil
 return
 temperature °C : 45
 Tolerance °C : 1

Overflow
 restriction mm : 0.55

Inlet press. bar : 0.35
 Tolerance bar : 0.05

Test nozzle holde
 assembly : 1 688 901 000

Opening pressure
 bar : 147
 Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
 x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

B19

(as of UT) mm : 0,6
 Tolerance mm : $\pm 0,02$
 Check
 tolerance mm : $\pm 0,04$

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
 Setting mm : 6.2
 Tolerance mm : 0.2
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
 Setting hPa : 6.0
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 64.0
 Tolerance
 cm³/1000 strokes : 0.5
 Spread
 cm³/1000 strokes : 3.5
 Shutoff solenoid
 Volt : 24

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 9.0
 Tolerance
 cm³/1000 strokes : 3.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1550
 Del. quantity
 cm³/1000 strokes : 55.0

Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : 20.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1400
SV travel mm : 9.0
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
SV travel mm : 3.7
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1400
Supply pump
pressure bar : 7.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Supply pump
pressure bar : 4.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1500

Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1550
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 4.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1630
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000s. : 7.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1700
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1580
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : 15.0
Check tolerance
cm³/1000s. : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : 72.0
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 47.5
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 64.0
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 2.5
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 strokes : 15.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 370
 Del. quantity
 cm³/1000 strokes : 75.0
 Tolerance
 cm³/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,8
 Tolerance mm : +0,2
 Dimension MS mm : 1,3
 Tolerance mm : +0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,4..40,4

Control leve.
position YB mm : 44,0..49,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.06.96
Test oil : ISO 4113
Part no. : 0 460 426 225
Pump designation : VE6/12F1200R551

Customer-spec. information
Customer : SNF
Motor : WD 612.42
Power KW : 105.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1
Overflow
restriction mm : 0.55
Inlet press. bar : 0.35
Tolerance bar : 0.05
Test nozzle holde
assembly : 1 688 901 110
Opening pressure
bar : 250
Tolerance bar : 3
Test lines : 1 680 750 000
Outside diameter : 6.00
x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

B23

(as of UT) mm : 0,2
Tolerance mm : +-0,02
Check
tolerance mm : +-0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850
Setting mm : 2.2
Tolerance mm : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 850
Setting hPa : 7.6
Tolerance hPa : 0.3

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 66.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 4.0

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 strokes : 2.0
Spread
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1290
Del. quantity
cm3/1000 strokes : 50.0
Tolerance
cm3/1000 strokes : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 90.0

Tolerance
cm³/1000 strokes : 20.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 950

SV travel mm : 3.3

Tolerance mm : 0.4

Check
tolerance mm : 0.7

Rated speed rpm : 750

SV travel mm : 1.0

Tolerance mm : 0.4

Check
tolerance mm : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200

Supply pump

pressure bar : 9.3

Tolerance hPa : 0.3

Rated speed rpm : 600

Supply pump

pressure bar : 5.8

Tolerance hPa : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1200

Overflow quantity

ccm/10s : 97.2

Tolerance

ccm/10s : 41.6

Check tolerance

ccm/10s : 41.6

Rated speed rpm : 600

Overflow quantity

ccm/10s : 63.8

Tolerance

ccm/10s : 22.2

Check tolerance

ccm/10s : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1290

Del. quantity
cm³/1000 strokes : 50.0

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000s. : 8.5

Rated speed rpm : 1350

Del. quantity
cm³/1000 strokes : 7.5

Check tolerance
cm³/1000s. : 7.5

Rated speed rpm : 1400

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 strokes : 1.5

Check tolerance
cm³/1000s. : 1.5

Rated speed rpm : 1300

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : 25.0

Check tolerance
cm³/1000s. : 25.0

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 66.3

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000s. : 4.0

Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 68.5

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000s. : 4.0

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 65.0

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000s. : 6.0

Rated speed rpm : 800

Del. quantity
cm³/1000 strokes : 66.0

Tolerance
cm³/1000 strokes : 0.5

Check tolerance
cm³/1000s. : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

START TRANSITION

Rated speed rpm : 430
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : 15.0

Rated speed rpm : 330
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 6,0
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,1
Tolerance mm : $\pm 0,2$

CONTROL LEVER POSITION SET

Control Lever
position YA mm : 36,2..40,2

Control Lever
position YB mm : 51,0..59,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 25.06.96

Test oil : ISO 4113

Part no. : 0 460 426 231

Pump designation : VE6/12F1200R563

Customer-spec. information

Customer : MAN

Motor : D 0826 LOH 06

Power KW : 140.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return

temperature °C : 45

Tolerance °C : 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35

Tolerance bar : 0.05

Test nozzle holde
assembly

: 1 688 901 110

Opening pressure
bar

: 250

Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00

x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,2

Tolerance mm : $\pm 0,02$

Check

tolerance mm : $\pm 0,04$

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850

Aneroid pressure

hPa : 1000

Setting mm

: 2.2

Tolerance mm

: 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 850

Aneroid pressure

hPa : 1000

Setting hPa

: 7.5

Tolerance hPa

: 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800

Aneroid pressure

hPa : 1000

Del. quantity

cm³/1000 strokes : 94.5

Tolerance

cm³/1000 strokes : 0.5

Spread

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000s. : 4.5

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600

Del. quantity

cm³/1000 strokes : 60.0

Tolerance

cm³/1000 strokes : 0.5

Check tolerance

cm³/1000s. : 4.5

IDLE SETTING

Rated speed rpm : 250

Del. quantity

cm³/1000 strokes : 20.0

Tolerance

cm³/1000 strokes : 3.5

Spread

cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : 30.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 950
Aneroid pressure
hPa : 1000
SV travel mm : 3.3
Tolerance mm : 0.4
Check
tolerance mm : 0.7

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
SV travel mm : 1.0
Tolerance mm : 0.4
Check
tolerance mm : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 9.0
Tolerance hPa : 0.3

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 6.3
Tolerance hPa : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 1510
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 1550
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

Rated speed rpm : 1440
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 20.0
Check tolerance
cm³/1000S. : 20.0

Rated speed rpm : 600
Aneroid pressure
hPa : 400

LDA/
HBA stroke mm : 6.2
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.5

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 89.5
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 91.5
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 94.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 strokes : 20.0

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.2
Dimension KF mm : 6,0
Tolerance mm : +0,2
Dimension MS mm : 1,1
Tolerance mm : +0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,4..40,4

Control lever
position YB mm : 41,9..48,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.05.95
Test oil : ISO 4113
Part no. : 0 460 414 108
Pump designation : VE4/11F2000R567

Customer-spec. information
Customer : FORD
Motor : 2.5l DI
Power KW : 56.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1
Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,52
Tolerance mm : +-0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.7
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Setting hPa : 7.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 34.0
Del. quantity
cm3/1000 strokes : 25.5
Tolerance
cm3/1000 strokes : 0.5
Tolerance
cm3/1000 strokes : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 strokes : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 strokes : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000

SV travel mm : 1.7
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

SV travel mm : 2.9
 Tolerance mm : 0.1
 Check
 tolerance mm : 0.6
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 8.9

Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 5.5
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Supply pump
 pressure bar : 6.7
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s : 34.7

Check tolerance
 ccm/10s : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000s : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2140
 Del. quantity
 cm³/1000 strokes : 29.5
 Tolerance
 cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2330
Del. quantity
cm³/1000 strokes : 4.0
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

Aneroid pressure
hPa :

LDA/
HBA stroke mm : 7.7

Rated speed rpm : 1950
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 strokes : 1.2
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1700
Del. quantity
cm³/1000 strokes : 37.5
Tolerance
cm³/1000 strokes : 1.2
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 25.5
Tolerance
cm³/1000 strokes : 0.2
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 21.3
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.7
Dimension K mm : 2,8
Tolerance mm : $\pm 0,1$
Dimension KF mm : 5,4
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,8
Tolerance mm : $\pm 0,2$
KSB travel mm : 10,0
TLA travel mm : 2,5

MICROSWITCH
SET

: ARF 20,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 42,8..45,8

Control lever
position YB mm : 59,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.04.95
Test oil : ISO 4113
Part no. : 0 460 414 113
Pump designation : VE4/11F2000R567-1

Customer-spec. information
Customer : FORD
Motor : 2.5L DI
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1
Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,52
Tolerance mm : +0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.5
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Setting hPa : 7.4
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150
Rated speed rpm : 1950
Del. quantity
cm3/1000 strokes : 35.0
Del. quantity
cm3/1000 strokes : 41.5
Tolerance
cm3/1000 strokes : 0.5
Tolerance
cm3/1000 strokes : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000s. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 strokes : 7.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000s. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm3/1000 strokes : 26.0
 Tolerance
 cm3/1000 strokes : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm3/1000 strokes : 45.0
 Tolerance
 cm3/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 1.3
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 SV travel mm : 2.9
 Tolerance mm : 0.1
 Check
 tolerance mm : 0.6
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 9.0

Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 5.7
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Supply pump
 pressure bar : 7.2
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s : 34.7

Check tolerance
 ccm/10s : 34.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm3/1000 strokes : 26.0
 Tolerance
 cm3/1000 strokes : 1.0
 Check tolerance
 cm3/1000s. : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm3/1000 strokes : 12.0
 Check tolerance
 cm3/1000s. : 6.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 2400

Del. quantity
cm3/1000 strokes : 2.5

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 2.5

Shutoff solenoid
Volt : 12

Aneroid pressure
hPa :

LDA/
HBA stroke mm : 7.2

Rated speed rpm : 1700

Del. quantity
cm3/1000 strokes : 41.0

Tolerance
cm3/1000 strokes : 1.2

Check tolerance
cm3/1000S. : 2.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 500

Del. quantity
cm3/1000 strokes : 28.5

Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 4.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 1950

Del. quantity
cm3/1000 strokes : 41.5

Tolerance
cm3/1000 strokes : 0.2

Check tolerance
cm3/1000S. : 3.0

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 425

Del. quantity
cm3/1000 strokes : 1.5

Tolerance
cm3/1000 strokes : 1.5

Check tolerance
cm3/1000S. : 1.5

Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425

Del. quantity
cm3/1000 strokes : 1.5

Tolerance
cm3/1000 strokes : 1.5

Spread
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 1.5

Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500

Del. quantity
cm3/1000 strokes : 3.0

Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 3.0

Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250

Del. quantity
cm3/1000 strokes : 22.5

Tolerance
cm3/1000 strokes : 0.5

Check tolerance
cm3/1000S. : 2.5

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 480

Del. quantity
cm3/1000 strokes : 26.0

Tolerance
cm3/1000 strokes : 6.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.2
Dimension K mm : 2,8
Tolerance mm : $\pm 0,1$
Dimension KF mm : 5,4
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,8
Tolerance mm : $\pm 0,2$
KSB travel mm : 10,0
TLA travel mm : 2,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 41,0..44,0

Control lever
position YB mm : 63,0..75,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.06.96
Test oil : ISO 4113
Part no. : 0 460 494 367
Pump designation : VE4/9F2250R601

Customer-spec. information

Customer : PSA
Motor : XUD 9 BTF/L3 U6

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,3
Tolerance mm : +0,02
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Setting mm : 9.5
Tolerance mm : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Setting hPa : 6.8
Tolerance hPa : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 54.0
Tolerance cm³/1000 strokes : 0.5
Spread cm³/1000 strokes : 2.0
Check tolerance cm³/1000S. : 3.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 36.5
Tolerance cm³/1000 strokes : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 490

Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
SV travel mm : 11.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12
Rated speed rpm : 750
Aneroid pressure
hPa : 1000

SV travel mm : 8.2
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000

SV travel mm : 0.6
Tolerance mm : 0.6
Check
tolerance mm : 0.6
Shutoff solenoid
Volt : 12

Timing device
solenoid Volt : 100

Rated speed rpm : 300
Aneroid pressure
hPa : 1000

SV travel mm : 6.6
Tolerance mm : 0.6
Check
tolerance mm : 0.6
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 5.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 119.4
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 72.2
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2375
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 350
Del. quantity
cm³/1000 strokes : 45.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 51.5
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 48.3
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 54.0
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 2.2
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 28.5
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 380
 Del. quantity
 cm³/1000 strokes : 35.0
 Tolerance
 cm³/1000 strokes : 10.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
 Tolerance mm : +0,1
 Dimension KF mm : 6,0
 Tolerance mm : +0,2
 Dimension MS mm : 1,3
 Tolerance mm : +0,2

POTENTIOMETER SET

1. measurement
 voltage Volt : 5,0
 1. measurement
 voltage Volt : 1,9

CONTROL LEVER POSITION SET

Control lever
 position YA mm : 25,8..29,8
 Control lever
 position YB mm : 36,1..50,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.06.96
Test oil : ISO 4113

Part no. : 0 460 494 382
Pump designation : VE4/9F2250R601-1

Customer-spec. information

Customer : PSA
Motor : XUD9 BTF-L3
Power KW : 66.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Setting mm : 9.5
Tolerance mm : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Setting hPa : 6.8
Tolerance hPa : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 54.0
Tolerance cm3/1000 strokes : 0.5
Spread cm3/1000 strokes : 2.0
Check tolerance cm3/1000S. : 3.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 36.5
Tolerance cm3/1000 strokes : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 490
Del. quantity cm3/1000 strokes : 8.5
Tolerance cm3/1000 strokes : 0.5

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
SV travel mm : 11.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000

SV travel mm : 8.2
Tolerance mm : 0.4

Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000

SV travel mm : 0.6
Tolerance mm : 0.6

Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Timing device
solenoid Volt : 100

Rated speed rpm : 300
Aneroid pressure
hPa : 1000

SV travel mm : 6.6
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.3
Tolerance hPa : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 119.4
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 72.2
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 24.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2375
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 350
Del. quantity
cm³/1000 strokes : 45.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000s. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 51.5
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000s. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 48.3
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 28.5

Tolerance
cm3/1000 strokes : 1.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 strokes : 1.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : +0,1
Dimension KF mm : 6,0
Tolerance mm : +0,2
Dimension MS mm : 1,3
Tolerance mm : +0,2

POTENTIOMETER SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : ARF1=2,0 V
2. measurement
voltage Volt : ARF2=1,1 V

CONTROL LEVER POSITION SET

Control lever
position YA mm : 25,8..29,8
Control lever
position YB mm : 36,1..50,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.06.96
Test oil : ISO 4113

Part no. : 0 460 494 427
Pump designation : VE4/9F2250R601-2

Customer-spec. information

Customer : PSA
Motor : XUD9 BTF-L3
Power KW : 66.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting mm : 9.5
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Setting hPa : 6.8
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 490
Del. quantity
cm3/1000 strokes : 8.5
Tolerance
cm3/1000 strokes : 0.5

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 53.0
Shutoff solenoid
Volt : 12

SETTING GRAD. STARTING FUEL DELIVERY FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
SV travel mm : 11.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000

SV travel mm : 8.2
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000

SV travel mm : 0.6
Tolerance mm : 0.6
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Timing device
solenoid Volt : 100

Rated speed rpm : 300
Aneroid pressure
hPa : 1000

SV travel mm : 6.6
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.3
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s : 41.6

Check tolerance
 ccm/10s : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 72.2
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 24.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 14.0
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000s. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2375
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 39.0
 Tolerance
 cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000s. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 3.0
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000s. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 350
 Del. quantity
 cm³/1000 strokes : 45.5
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000s. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2150
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 50.5
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000s. : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 51.5
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000s. : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 48.3
 Tolerance
 cm³/1000 strokes : 1.5

| | |
|-------------------------------|--------|
| Check tolerance | |
| cm ³ /1000S. | : 3.0 |
| Shutoff solenoid | |
| Volt | : 12 |
| Rated speed rpm | : 1250 |
| Aneroid pressure | |
| hPa | : 1000 |
| Del. quantity | |
| cm ³ /1000 strokes | : 54.0 |
| Tolerance | |
| cm ³ /1000 strokes | : 0.5 |
| Check tolerance | |
| cm ³ /1000S. | : 2.2 |
| Shutoff solenoid | |
| Volt | : 12 |

MECHANICAL SHUTOFF

| | |
|-------------------------------|--------|
| Rated speed rpm | : 2000 |
| Aneroid pressure | |
| hPa | : 1000 |
| Del. quantity | |
| cm ³ /1000 strokes | : 1.5 |
| Tolerance | |
| cm ³ /1000 strokes | : 1.5 |
| Check tolerance | |
| cm ³ /1000S. | : 1.5 |
| Shutoff solenoid | |
| Volt | : 12 |

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

| | |
|-------------------------------|-------|
| Rated speed rpm | : 400 |
| Del. quantity | |
| cm ³ /1000 strokes | : 1.5 |
| Tolerance | |
| cm ³ /1000 strokes | : 1.5 |
| Check tolerance | |
| cm ³ /1000S. | : 1.5 |

FULL-LOAD STOP CONTROL LEVER

| | |
|-------------------------------|-------|
| Rated speed rpm | : 400 |
| Del. quantity | |
| cm ³ /1000 strokes | : 1.5 |
| Tolerance | |
| cm ³ /1000 strokes | : 1.5 |
| Check tolerance | |
| cm ³ /1000S. | : 1.5 |

EXHAUST-GAS RECIRCULATION

| | |
|-------------------------------|--------|
| Rated speed rpm | : 1250 |
| Aneroid pressure | |
| hPa | : 1000 |
| Del. quantity | |
| cm ³ /1000 strokes | : 28.5 |
| Tolerance | |
| cm ³ /1000 strokes | : 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : 4.0 |
| Shutoff solenoid | |
| Volt | : 12 |

| | |
|-------------------------------|--------|
| Rated speed rpm | : 500 |
| Aneroid pressure | |
| hPa | : 1000 |
| Del. quantity | |
| cm ³ /1000 strokes | : 15.0 |
| Tolerance | |
| cm ³ /1000 strokes | : 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : 4.0 |
| Shutoff solenoid | |
| Volt | : 12 |

START TRANSITION

| | |
|-------------------------------|--------|
| Rated speed rpm | : 380 |
| Del. quantity | |
| cm ³ /1000 strokes | : 35.0 |
| Tolerance | |
| cm ³ /1000 strokes | : 10.0 |
| Shutoff solenoid | |
| Volt | : 12 |

ASSEMBLY AND ADJUSTMENT DIMENSIONS

| | |
|-----------------|--------|
| Dimension K mm | : 3,3 |
| Tolerance mm | : +0,1 |
| Dimension KF mm | : 6,0 |
| Tolerance mm | : +0,2 |
| Dimension MS mm | : 1,3 |
| Tolerance mm | : +0,2 |

POTENTIOMETER SET

| | |
|----------------|--------------|
| 1. measurement | |
| voltage Volt | : 5,0 |
| 1. measurement | |
| voltage Volt | : ARF1=2,0 V |
| 2. measurement | |
| voltage Volt | : ARF2=1,1 V |

MICROSWITCH
SET

mm : ARF1=12,0
: ARF2=12,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 25,8..29,8

Control lever
position YB mm : 36,1..50,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.05.96
Test oil : ISO 4113

Part no. : 0 460 484 078
Pump designation : VE4/8F2500R611

Customer-spec. information
Customer : PSA
Motor : TUD 5-L
Power KW : 42.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

C25

Plunger stroke mm : 0,8
Tolerance mm : +-0,02
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 5.0
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500

Setting hPa : 6.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY
CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2200
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800

SV travel mm : 1.6
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.1
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Supply pump
pressure bar : 4.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2450
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2580
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2800
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000s. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 25.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

START TRANSITION

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm : +0,1
Dimension KF mm : 6,0
Tolerance mm : +0,2
Dimension MS mm : 1,0
Tolerance mm : +0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 32,0..36,0

Control lever
position YB mm : 26,0..35,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.12.95
Test oil : ISO 4113

Part no. : 0 460 484 106
Pump designation : VE4/8F2500R611-3

Customer-spec. information
Customer : PSA
Motor : TUD5-L4
Power KW : 42.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,75
Tolerance mm : $\pm 0,02$
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 5.0
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500

Setting hPa : 6.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY
CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2200
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800

SV travel mm : 1.6
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2450

SV travel mm : 9.8
Tolerance mm : 0.3

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.1
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Supply pump
pressure bar : 4.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2450

Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2580
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2800
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 25.5
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000s. : 2.2

Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 25.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 strokes : 1.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 340
Del. quantity
cm3/1000 strokes : 22.5
Tolerance
cm3/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 52.0
Tolerance
cm3/1000 strokes : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,0
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,0
Tolerance mm : $\pm 0,2$

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.11.95
Test oil : ISO 4113

Part no. : 0 460 414 119
Pump designation : VE4/11F2000R624

Customer-spec. information
Customer : FORD
Motor : 2.5L DI
Power KW : 56.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holder
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

D03

Plunger stroke mm : 0,52
Tolerance mm : +0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.7
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Setting hPa : 7.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 34.0
Del. quantity
cm3/1000 strokes : 25.5
Tolerance
cm3/1000 strokes : 0.5
Tolerance
cm3/1000 strokes : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 9.0
Tolerance
cm3/1000 strokes : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 strokes : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 1.7
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 8.9
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 5.5
 Tolerance hPa : 0.3

Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Supply pump
 pressure bar : 6.7
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s : 34.7

Check tolerance
 ccm/10s : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000s. : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2140
 Del. quantity
 cm³/1000 strokes : 29.5
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000s. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 2.5

Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Aneroid pressure
 hPa :

LDA/
 HBA stroke mm : 7.7

Rated speed rpm : 1950
 Del. quantity
 cm3/1000 strokes : 37.0
 Tolerance
 cm3/1000 strokes : 1.2
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1700
 Del. quantity
 cm3/1000 strokes : 38.0
 Tolerance
 cm3/1000 strokes : 1.2
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 25.5
 Tolerance
 cm3/1000 strokes : 0.2
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 3.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 21.3
 Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 480
 Del. quantity
 cm3/1000 strokes : 26.0
 Tolerance
 cm3/1000 strokes : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm3/1000 strokes : 48.0
 Tolerance
 cm3/1000 strokes : 15.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 7.7
Dimension K mm : 2,8
Tolerance mm : $\pm 0,1$
Dimension KF mm : 5,4
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,8
Tolerance mm : $\pm 0,2$

MICROSWITCH
SET

: ARF 20

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 42,8..45,8

Control lever
position YB mm : 59,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.96
Test oil : ISO 4113
Part no. : 0 460 414 123
Pump designation : VE4/11F2000R624-1

Customer-spec. information
Customer : FORD
Motor : 2.5L-DI
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1
Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.7
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Setting hPa : 7.4
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 36.0
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 strokes : 0.5
Tolerance
cm3/1000 strokes : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 10.5
Tolerance
cm3/1000 strokes : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
Del. quantity
cm3/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : 20.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Tolerance mm : 0.4
Check
tolerance mm : 0.9
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.9
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 9.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 5.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150
Supply pump
pressure bar : 7.2
Tolerance hPa : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 119.4
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1950
Overflow quantity
ccm/10s : 150.0
Tolerance
ccm/10s : 34.7

Check tolerance
ccm/10s : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000s. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000s. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000s. : 2.5
Shutoff solenoid
Volt : 12

Aneroid pressure
hPa :

LDA/
HBA stroke mm : 7.2

Rated speed rpm : 1950
Del. quantity
cm³/1000 strokes : 41.5
Tolerance
cm³/1000 strokes : 1.2
Check tolerance
cm³/1000s. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1700
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 1.2
Check tolerance
cm³/1000s. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : 0.2
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000s. : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.2
Dimension K mm : 2,8

Tolerance mm : $\pm 0,1$
Dimension KF mm : 8,4
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,8
Tolerance mm : $\pm 0,2$

MICROSWITCH
SET

: ARF 20,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 41,0..43,5

Control lever
position YB mm : 63,0..75,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.11.95
Test oil : ISO 4113

Part no. : 0 460 414 138
Pump designation : VE4/11F2000R624-2

Customer-spec. information
Customer : FORD
Motor : 2.5L DI
Power KW : 56.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,52
Tolerance mm : $\pm 0,05$
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.7
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Setting hPa : 7.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 34.0
Del. quantity
cm3/1000 strokes : 25.5
Tolerance
cm3/1000 strokes : 0.5
Tolerance
cm3/1000 strokes : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 9.0
Tolerance
cm3/1000 strokes : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 strokes : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 1.7
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 8.9
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 5.5
 Tolerance hPa : 0.3

Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Supply pump
 pressure bar : 6.7
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s : 34.7

Check tolerance
 ccm/10s : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000s. : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2140
 Del. quantity
 cm³/1000 strokes : 29.5
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000s. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 2.5

Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Aneroid pressure
 hPa :

LDA/
 HBA stroke mm : 7.7

Rated speed rpm : 1950
 Del. quantity
 cm3/1000 strokes : 37.0
 Tolerance
 cm3/1000 strokes : 1.2
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1700
 Del. quantity
 cm3/1000 strokes : 38.0
 Tolerance
 cm3/1000 strokes : 1.2
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 25.5
 Tolerance
 cm3/1000 strokes : 0.2
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 3.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 21.3
 Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 480
 Del. quantity
 cm3/1000 strokes : 26.0
 Tolerance
 cm3/1000 strokes : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm3/1000 strokes : 48.0
 Tolerance
 cm3/1000 strokes : 15.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 7.7

Dimension K mm : 2,8

Tolerance mm : $\pm 0,1$

Dimension KF mm : 8,4

Tolerance mm : $\pm 0,2$

Dimension MS mm : 1,8

Tolerance mm : $\pm 0,2$

MICROSWITCH

SET

: ARF 20,0

CONTROL LEVER POSITION

SET

Control lever

position YA mm : 42,8..45,8

Control lever

position YB mm : 59,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.96
Test oil : ISO 4113

Part no. : 0 460 414 139
Pump designation : VE4/11F2000R624-3

Customer-spec. information
Customer : FORD
Motor : 2.5L-DI
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,52
Tolerance mm : +-0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.7
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Setting hPa : 7.4
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 36.0
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 strokes : 0.5
Tolerance
cm3/1000 strokes : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000s. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 10.5
Tolerance
cm3/1000 strokes : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000s. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 strokes : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 1.5
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 9.0
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 5.7
 Tolerance hPa : 0.3

Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Supply pump
 pressure bar : 7.2
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s : 34.7

Check tolerance
 ccm/10s : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000s. : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm³/1000 strokes : 12.0
 Check tolerance
 cm³/1000s. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 2.5
 Tolerance
 cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

Aneroid pressure
hPa :

LDA/
HBA stroke mm : 7.2

Rated speed rpm : 1950
Del. quantity
cm³/1000 strokes : 41.5
Tolerance
cm³/1000 strokes : 1.2
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1700
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 1.2
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : 0.2
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.2
Dimension K mm : 2,8
Tolerance mm : $\pm 0,1$
Dimension KF mm : 8,4
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,8
Tolerance mm : $\pm 0,2$

MICROSWITCH
SET

: ARF 20,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 41,0..44,0

Control lever
position YB mm : 63,0..75,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.05.96
Test oil : ISO 4113

Part no. : 0 460 414 150
Pump designation : VE4/11F2000R624-4

Customer-spec. information
Customer : FORD
Motor : 2.5L DI
Power KW : 56.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,52
Tolerance mm : $\pm 0,05$
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.7
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Setting hPa : 7.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 34.0
Del. quantity
cm³/1000 strokes : 25.5
Tolerance
cm³/1000 strokes : 0.5
Tolerance
cm³/1000 strokes : 0.2
Spread
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 strokes : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 1.7
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 8.9
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 5.5
 Tolerance hPa : 0.3

Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Supply pump
 pressure bar : 6.7
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s : 34.7

Check tolerance
 ccm/10s : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000s. : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2140
 Del. quantity
 cm³/1000 strokes : 29.5
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000s. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 2.5

Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Aneroid pressure
 hPa :

LDA/
 HBA stroke mm : 7.7

Rated speed rpm : 1950
 Del. quantity
 cm3/1000 strokes : 37.0
 Tolerance
 cm3/1000 strokes : 1.2
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1700
 Del. quantity
 cm3/1000 strokes : 38.0
 Tolerance
 cm3/1000 strokes : 1.2
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 25.5
 Tolerance
 cm3/1000 strokes : 0.2
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 3.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 21.3
 Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 480
 Del. quantity
 cm3/1000 strokes : 26.0
 Tolerance
 cm3/1000 strokes : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm3/1000 strokes : 48.0
 Tolerance
 cm3/1000 strokes : 15.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 7.7

Dimension K mm : 2,8

Tolerance mm : $\pm 0,1$

Dimension KF mm : 8,4

Tolerance mm : $\pm 0,2$

Dimension MS mm : 1,8

Tolerance mm : $\pm 0,2$

MICROSWITCH

SET

: ARF 20,0

CONTROL LEVER POSITION

SET

Control lever

position YA mm : 42,8..45,8

Control lever

position YB mm : 59,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.06.96
Test oil : ISO 4113
Part no. : 0 460 414 132
Pump designation : VE4/11F2000R663

Customer-spec. information
Customer : OTOSAN
Motor : 2.5L-DI
Power KW : 74.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

D23

Plunger stroke mm : 0,62
Tolerance mm : +-0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Setting mm : 3.2
Tolerance mm : 0.3
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Setting hPa : 7.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 42.0
Tolerance
cm3/1000 strokes : 0.2
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 29.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425

Del. quantity
cm³/1000 strokes : 7.7
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 17.8
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 strokes : 20.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -5.6
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.8
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Tolerance mm : 0.4
Check
tolerance mm : 0.9
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 1.9
Tolerance mm : 0.4
Check
tolerance mm : 0.9
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 9.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 133.3

Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1950
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 152.7
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 17.8
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000s. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

Aneroid pressure
hPa : 450

LDA/
HBA stroke mm : 5.3
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1950
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : 1.2
Check tolerance
cm³/1000s. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : 1.2
Check tolerance
cm³/1000s. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : 0.2
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5

Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -8.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.8
Tolerance
cm³/1000 strokes : 0.1
Check tolerance
cm³/1000S. : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0

Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm : 0.6
Check
tolerance mm : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.3
Dimension K mm : 2,8
Tolerance mm : +-0,1
Dimension KF mm : 8,4
Tolerance mm : +-0,2
MS1 dimension mm : 1,8
Tolerance mm : +0,15/0,1
KSB travel mm : 10,0
TLA travel mm : 2,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 42,8..45,8

Control lever
position YB mm : 59,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 11.06.96
 Test oil : ISO 4113
 Part no. : 0 460 414 154
 Pump designation : VE4/11F2000R711

Customer-spec. information

Customer : OTOSAN
 Motor : 2.5L-DITC
 Power KW : 74.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
 Tolerance °C : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
 Tolerance bar : 0.05

Test nozzle holder assembly : 1 688 901 114

Opening pressure bar : 207
 Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
 x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

D28

Plunger stroke mm : 0,62
 Tolerance mm : +-0,5
 Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
 Aneroid pressure hPa : 1000

Setting mm : 3.2
 Tolerance mm : 0.3
 Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
 Aneroid pressure hPa : 1000

Setting hPa : 7.0
 Tolerance hPa : 0.3
 Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800
 Aneroid pressure hPa : 1000
 Del. quantity cm3/1000 strokes : 42.0
 Tolerance cm3/1000 strokes : 0.2
 Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
 Del. quantity cm3/1000 strokes : 29.0
 Tolerance cm3/1000 strokes : 0.5
 Spread cm3/1000 strokes : 3.0
 Shutoff solenoid Volt : 12
 Check tolerance cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425

Del. quantity
cm³/1000 strokes : 7.7
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 17.8
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 strokes : 20.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -5.6
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.8
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Tolerance mm : 0.4
Check
tolerance mm : 0.9
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 1.9
Tolerance mm : 0.4
Check
tolerance mm : 0.9
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 9.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 133.3

Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1950
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 152.7
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 17.8
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

Aneroid pressure
hPa : 450

LDA/
HBA stroke mm : 5.3
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1950
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : 1.2
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : 1.2
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : 0.2
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5

Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -8.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.8
Tolerance
cm³/1000 strokes : 0.1
Check tolerance
cm³/1000S. : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0

Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm : 0.6
Check
tolerance mm : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.3
Dimension K mm : 2,8
Tolerance mm : +-0,1
Dimension KF mm : 8,4
Tolerance mm : +-0,2
MS1 dimension mm : 1,8
Tolerance mm : +0,15/-0,1

CONTROL LEVER POSITION SET

Control lever
position YA mm : 42,8..45,8

Control lever
position YB mm : 59,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.02.94
Test oil : ISO 4113

Part no. : 0 460 484 061
Pump designation : VE4/8F2300R317-6

Customer-spec. information
Customer : RENAULT
Motor : F8Q - 706 CA
Power KW : 47.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 3.4
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Setting hPa : 4.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 31.5
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 strokes : 15.0

Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -11.5
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.5
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000

SV travel mm : 6.2
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 310

SV travel mm : 2.2
Tolerance mm : 1.2

Check
tolerance mm : 1.2

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500

SV travel mm : 3.4
Tolerance mm : 1.2

Check
tolerance mm : 1.2

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump

pressure bar : 6.6
Tolerance hPa : 0.3

Shutoff solenoid
Volt : 12

Rated speed rpm : 750

Supply pump
pressure bar : 3.4

Tolerance hPa : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250

Overflow quantity
ccm/10s : 97.2

Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6

Shutoff solenoid
Volt : 12

Rated speed rpm : 750

Overflow quantity
ccm/10s : 63.8

Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2

Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm3/1000 strokes : 11.0
Check tolerance
cm3/1000S. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2950
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm3/1000 strokes : 32.5
Tolerance
cm3/1000 strokes : 1.0
Check tolerance
cm3/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1625
Del. quantity
cm3/1000 strokes : 31.2
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm3/1000 strokes : 31.3
Tolerance
cm3/1000 strokes : 1.0
Check tolerance
cm3/1000S. : 2.3

Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 31.6
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 31.5
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -15.2
Tolerance
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 2.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -0.5
Tolerance
cm3/1000 strokes : 0.1
Check tolerance
cm3/1000S. : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm : 0.2
Check
tolerance mm : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 5,5
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,3

Tolerance mm : $\pm 0,2$

MICROSWITCH
SET

mm : 0,8..3,0
: 7,5..8,5

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 32,6..36,6

Control lever
position YB mm : 65,7..78,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.07.96
Test oil : ISO 4113

Part no. : 0 460 484 129
Pump designation : VE4/8F2300R317-9

Customer-spec. information

Customer : RENAULT
Motor : F8Q - 706 CA
Power KW : 45.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 3.4
Tolerance mm : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Setting hPa : 4.7
Tolerance hPa : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity cm3/1000 strokes : 31.5
Tolerance cm3/1000 strokes : 0.5
Spread cm3/1000 strokes : 2.5
Shutoff solenoid Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity cm3/1000 strokes : 3.0
Tolerance cm3/1000 strokes : 2.0
Shutoff solenoid Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Del. quantity cm3/1000 strokes : 26.0
Tolerance cm3/1000 strokes : 3.0
Shutoff solenoid Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm3/1000 strokes : 55.0
Tolerance cm3/1000 strokes : 15.0

Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -11.5
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.5
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000

SV travel mm : 6.2
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 310

SV travel mm : 2.2
Tolerance mm : 1.2
Check
tolerance mm : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500

SV travel mm : 3.4
Tolerance mm : 1.2
Check
tolerance mm : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 6.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 3.4
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6
Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2
Check tolerance
ccm/10s : 22.2

Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm3/1000 strokes : 11.0
Check tolerance
cm3/1000S. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2950
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm3/1000 strokes : 32.5
Tolerance
cm3/1000 strokes : 1.0
Check tolerance
cm3/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1625
Del. quantity
cm3/1000 strokes : 31.2
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm3/1000 strokes : 31.3
Tolerance
cm3/1000 strokes : 1.0
Check tolerance
cm3/1000S. : 2.3

Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 31.6
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 31.5
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -15.2
Tolerance
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 2.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.5
Tolerance
cm³/1000 strokes : 0.1
Check tolerance
cm³/1000S. : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
SV travel mm : -0.5
Tolerance mm : 0.2
Check
tolerance mm : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : +0,1
Dimension KF mm : 5,5

Tolerance mm : +0,2
Dimension MS mm : 1,3
Tolerance mm : +0,2

MICROSWITCH SET

mm : 0,8...3,0
: 7,5...8,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.03.94
Test oil : ISO 4113

Part no. : 0 460 484 059
Pump designation : VE4/8F2300R458-2

Customer-spec. information
Customer : RENAULT
Motor : F8Q - 706
Power KW : 45.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 3.4
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Setting hPa : 4.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 32.1
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 55.0
Tolerance
cm3/1000 strokes : 15.0

Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -11.5
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.5
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000

SV travel mm : 6.2
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 310

SV travel mm : 2.2
Tolerance mm : 1.2
Check
tolerance mm : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500

SV travel mm : 3.4
Tolerance mm : 1.2
Check
tolerance mm : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 6.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 3.4
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2

Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 14.5
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2950
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1625
Del. quantity
cm³/1000 strokes : 31.6
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm³/1000 strokes : 33.5
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.3

Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 31.7
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 32.1
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -15.2
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 2.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.5
Tolerance
cm³/1000 strokes : 0.1
Check tolerance
cm³/1000S. : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
SV travel mm : -0.5
Tolerance mm : 0.2
Check
tolerance mm : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : +0,1
Dimension KF mm : 5,5

Tolerance mm : +0,2
Dimension MS mm : 1,3
Tolerance mm : +0,2

MICROSWITCH SET

mm : 0,8..3,0
: 9,8..10,8

CONTROL LEVER POSITION SET

Control lever
position YA mm : 25,3..29,7

Control lever
position YB mm : 62,6..74,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.07.96
Test oil : ISO 4113

Part no. : 0 460 484 130
Pump designation : VE4/8F2300R458-5

Customer-spec. information
Customer : RENAULT
Motor : F8Q - 706
Power KW : 45.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.4
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Setting hPa : 4.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 32.1
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 55.0
Tolerance
cm3/1000 strokes : 15.0

Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -11.5
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.5
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000

SV travel mm : 6.2
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SV travel mm : 1.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 310

SV travel mm : 2.2
Tolerance mm : 1.2
Check
tolerance mm : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500

SV travel mm : 3.4
Tolerance mm : 1.2
Check
tolerance mm : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 6.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 3.4
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6
Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2
Check tolerance
ccm/10s : 22.2

Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 14.5
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2950
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1625
Del. quantity
cm³/1000 strokes : 31.6
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm³/1000 strokes : 33.5
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.3

Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 31.7
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 32.1
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -15.2
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 2.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -0.5
 Tolerance
 cm³/1000 strokes : 0.1
 Check tolerance
 cm³/1000s. : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 5.0
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000s. : 3.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 SV travel mm : -0.5
 Tolerance mm : 0.2
 Check
 tolerance mm : 0.3
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 310
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 strokes : 15.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 210
 Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 strokes : 15.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
 Tolerance mm : +0,1
 Dimension KF mm : 5,5

Tolerance mm : +0,2
 Dimension MS mm : 1,3
 Tolerance mm : +0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 01.07.96
 Test oil : ISO 4113
 Part no. : 0 460 426 246
 Pump designation : VE6/12F1250R498-5

Customer-spec. information

Customer : CDC
 Motor : 6 BT 5.9B
 Power KW : 120.0

TEST BENCH REQUIREMENTS

Calibrating-oil
 return

temperature °C : 45
 Tolerance °C : 1

Overflow
 restriction mm : 0.55

Inlet press. bar : 0.35
 Tolerance bar : 0.05

Test nozzle holde
 assembly : 1 688 901 109

Opening pressure
 bar : 207
 Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
 x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
 Tolerance mm : $\pm 0,02$
 Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000

Setting mm : 1.8
 Tolerance mm : 0.2
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000

Setting hPa : 6.8
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 81.6
 Tolerance
 cm³/1000 strokes : 0.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 5.0
 Shutoff solenoid
 Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 68.1
 Tolerance
 cm³/1000 strokes : 0.5
 Spread
 cm³/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 24
 Check tolerance
 cm³/1000S. : 6.0

Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 strokes : 6.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
SV travel mm : 2.5
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 24
Rated speed rpm : 500

Aneroid pressure
hPa : 1000
Shutoff solenoid
Volt : 24

Rated speed rpm : 450
SV travel mm : 2.5
Tolerance mm : 0.5
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 24
KSB/AFB Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2
Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s : 27.7

Check tolerance
ccm/10s : 27.7
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1380
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1465
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 20.0
Check tolerance
cm³/1000S. : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 73.9
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.2
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.8
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.6
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,4
Tolerance mm : $\pm 0,2$
MS1 dimension mm : 1,1
Tolerance mm : $\pm 0,15/-0,1$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,9..49,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.07.96
Test oil : ISO 4113

Part no. : 0 460 484 101
Pump designation : VE4/8F2200R574-1

Customer-spec. information
Customer : VW
Motor : 1.9L SD

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 147
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

E25

Plunger stroke mm : 0,9
Tolerance mm : $\pm 0,2$
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 5.3
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Setting hPa : 5.9
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 33.5
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 525
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2525
Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 53.0
 Tolerance
 cm³/1000 strokes : 13.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750

SV travel mm : 3.5
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000

SV travel mm : 1.3
 Tolerance mm : 0.4
 Shutoff solenoid
 Volt : 12

Timing device
 solenoid Volt : 100

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 8.0
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Supply pump
 pressure bar : 4.3
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s : 41.6

Check tolerance
 ccm/10s : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2525
 Del. quantity
 cm³/1000 strokes : 10.5
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000s. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 27.0
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000s. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2675
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000s. : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 35.0
 Tolerance
 cm³/1000 strokes : 1.0

Check tolerance
cm3/1000s. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 37.5
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000s. : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -3.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 34.0
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000s. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 33.5
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000s. : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000s. : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450

Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000s. : 1.5
Spread
cm3/1000 strokes : 5.0

Rated speed rpm : 180
Del. quantity
cm3/1000 strokes : 57.0
Tolerance
cm3/1000 strokes : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : +0,1
Dimension KF mm : 5,7
Tolerance mm : +0,2
Dimension MS mm : 1,3
Tolerance mm : +0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 36,0..40,0

Control lever
position YB mm : 47,7..61,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.07.96
Test oil : ISO 4113

Part no. : 0 460 484 105
Pump designation : VE4/8F2200R574-2

Customer-spec. information
Customer : SEAT
Motor : 1.9L SD Klima
Power KW : 47.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 147
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

E28

Plunger stroke mm : 0,9
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 5.3
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Setting hPa : 5.9
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 33.5
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 525
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2525
Del. quantity
cm3/1000 strokes : 10.5
Tolerance
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 53.0
 Tolerance
 cm³/1000 strokes : 13.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 SV travel mm : 3.5
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000
 SV travel mm : 1.3
 Tolerance mm : 0.4
 Shutoff solenoid
 Volt : 12

Timing device
 solenoid Volt : 100

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 8.0
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Supply pump
 pressure bar : 4.3
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s : 41.6

Check tolerance
 ccm/10s : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2525
 Del. quantity
 cm³/1000 strokes : 10.5
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000s. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 27.0
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000s. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2675
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000s. : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 35.0
 Tolerance
 cm³/1000 strokes : 1.0

Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 37.5
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -3.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 33.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 strokes : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : +0,1
Dimension KF mm : 5,7
Tolerance mm : +0,2
Dimension MS mm : 1,3
Tolerance mm : +0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 36,0..40,0

Control lever
position YB mm : 47,7..57,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.06.96
Test oil : ISO 4113
Part no. : 0 460 424 132
Pump designation : VE4/12F1350R621-1

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8040.45.5100 EU2
Power KW : 85.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 55
Tolerance °C : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting mm : 1.5
Tolerance mm : 0.1
Shutoff solenoid Volt : 24
KSB/AFB Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting hPa : 6.9
Tolerance hPa : 0.3
Shutoff solenoid Volt : 24
KSB/AFB Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 72.0
Tolerance cm³/1000 strokes : 0.5
Spread cm³/1000 strokes : 3.5
Check tolerance cm³/1000s. : 5.0
Shutoff solenoid Volt : 24
KSB/AFB Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 53.0
Tolerance cm³/1000 strokes : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm³/1000s. : 5.0
KSB/AFB Volt : 24

IDLE SETTING

Rated speed rpm : 325
 Del. quantity
 cm3/1000 strokes : 17.0
 Tolerance
 cm3/1000 strokes : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm3/1000 strokes : 3.5
 Check tolerance
 cm3/1000S. : 5.0
 KSB/AFB Volt : 24

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1550
 Pressure hPa : 1000
 Del. quantity
 cm3/1000 strokes : 15.0
 Tolerance
 cm3/1000 strokes : 3.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm3/1000 strokes : 73.0
 Tolerance
 cm3/1000 strokes : 25.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.7
 Tolerance mm : 0.1
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

Setting point KSB
 Rated speed rpm : 340
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.0
 Tolerance mm : 0.3
 Check
 tolerance mm : 1.2
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 450
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.0
 Tolerance mm : 0.6
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.2
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 450
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.0
 Tolerance hPa : 0.8
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s : 22.2

 Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 24

 KSB/AFB Volt : 24

 Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s : 41.6

 Check tolerance
 ccm/10s : 41.6
 Shutoff solenoid
 Volt : 24

 KSB/AFB Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1550
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 6.0
 Shutoff solenoid
 Volt : 24

 KSB/AFB Volt : 24

 Rated speed rpm : 1475
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 50.0
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 7.0
 Shutoff solenoid
 Volt : 24

 KSB/AFB Volt : 24

 Rated speed rpm : 1600
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5
 Shutoff solenoid
 Volt : 24

 KSB/AFB Volt : 24

 Rated speed rpm : 600
 Aneroid pressure
 hPa : 350
 Del. quantity
 cm³/1000 strokes : 69.5
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 24

 KSB/AFB Volt : 24

 Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 69.5
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 3.5
 Shutoff solenoid
 Volt : 24

 KSB/AFB Volt : 24

 Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 77.5
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 3.5
 Shutoff solenoid
 Volt : 24

 KSB/AFB Volt : 24

 Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 72.0
 Tolerance
 cm³/1000 strokes : 0.5

Check tolerance
cm³/1000s. : 3.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Shutoff solenoid
Volt : 24
KSB/AFB Volt : 24

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : 10.0

F06

Shutoff solenoid
Volt : 24
KSB/AFB Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 24
KSB/AFB Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
Tolerance mm : +0,1
Dimension KF mm : 8,4
Tolerance mm : +0,2
MS1 dimension mm : 1,6
Tolerance mm : +0,15/-0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 36,9..40,9

Control lever
position YB mm : 38,9..44,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 06.02.96

Test oil : ISO 4113

Part no. : 0 460 494 403

Pump designation : VE4/9F2150R637

Customer-spec. information

Customer : NISSAN-MISA

Motor : GX-3

Power KW : 53.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return

temperature °C : 45

Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35

Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130

Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00

x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200

Setting mm : 3.2

Tolerance mm : 0.2

Shutoff solenoid

Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200

Setting hPa : 5.9

Tolerance hPa : 0.3

Shutoff solenoid

Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 2150

Del. quantity

cm3/1000 strokes : 44.5

Tolerance

cm3/1000 strokes : 0.5

Spread

cm3/1000 strokes : 2.5

Shutoff solenoid

Volt : 12

IDLE SETTING

Rated speed rpm : 375

Del. quantity

cm3/1000 strokes : 8.5

Tolerance

cm3/1000 strokes : 2.0

Shutoff solenoid

Volt : 12

Spread

cm3/1000 strokes : 2.5

Check tolerance

cm3/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500

Del. quantity

cm3/1000 strokes : 15.0

Tolerance

cm3/1000 strokes : 3.0

Shutoff solenoid

Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 60.0

Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2150
SV travel mm : 9.2
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
SV travel mm : 1.2
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2150
Supply pump
pressure bar : 8.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Supply pump
pressure bar : 5.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2350
Del. quantity
cm³/1000 strokes : 33.3
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2700
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000s. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 42.2
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 43.2
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 2.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 1800
Del. quantity
cm3/1000 strokes : 44.3
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Del. quantity
cm3/1000 strokes : 44.5
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 1.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 1.5

Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Del. quantity
cm3/1000 strokes : 0.80
Tolerance
cm3/1000 strokes : 0.02
Check tolerance
cm3/1000S. : 0.10

START TRANSITION

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 45.0
Tolerance
cm3/1000 strokes : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 270
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 strokes : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 5,4
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,2
Tolerance mm : $\pm 0,2$
KSB travel mm : 4,3
TLA travel mm : 6,5

POTENTIOMETER
SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 0,8

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 35,1..39,1

Control lever
position YB mm : 56,9..68,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.96
Test oil : ISO 4113
Part no. : 0 460 423 002
Pump designation : VE3/12F1125R532

Customer-spec. information

Customer : MWM
Motor : TD 226-B3
Power KW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

F11

Plunger stroke mm : 1,04
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 600
Setting mm : 3.0
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 600
Setting hPa : 5.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 91.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 4.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 21.0
Tolerance
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : 63.5
Tolerance
cm3/1000 strokes : 3.0

Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY
CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 700
SV travel mm : 4.4
Tolerance mm : 0.4
Check
tolerance mm : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
SV travel mm : 1.3
Tolerance mm : 0.4
Check
tolerance mm : 0.8
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Supply pump
pressure bar : 8.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Supply pump
pressure bar : 3.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1050

Overflow quantity
ccm/10s : 152.7
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : 63.5
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 8.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000s. : 7.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : 15.0
Check tolerance
cm³/1000s. : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1050
 Del. quantity
 cm3/1000 strokes : 84.0
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 92.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 5.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 400
 Del. quantity
 cm3/1000 strokes : 87.5
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 91.0
 Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1050
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 250
 Del. quantity
 cm3/1000 strokes : 90.0
 Tolerance
 cm3/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 180
 Del. quantity
 cm3/1000 strokes : 130.0

Tolerance
cm³/1000 strokes : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,4
Tolerance mm : $\pm 0,2$
MS1 dimension mm : 1,1
Tolerance mm : $\pm 0,15/-0,1$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 41,4..45,4

Control lever
position YB mm : 37,5..43,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.02.96
Test oil : ISO 4113

Part no. : 0 460 426 220
Pump designation : VE6/12F1150R534

Customer-spec. information
Customer : MWM
Motor : TD 226-B6
Power KW : 92.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 700

Setting mm : 2.3
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 700

Setting hPa : 5.9
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 68.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 4.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 13.0
Tolerance
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150
Del. quantity
cm3/1000 strokes : 61.0
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 800
SV travel mm : 3.6
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
SV travel mm : 0.7
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Supply pump
pressure bar : 7.8
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 4.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1050
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s : 41.6
Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 125.0
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 61.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1220
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000s. : 7.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1170
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 15.0
Check tolerance
cm³/1000s. : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 3.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 65.2
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : 68.0
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5

Check tolerance
 cm³/1000S. : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 250
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 strokes : 15.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 160
 Del. quantity
 cm³/1000 strokes : 120.0
 Tolerance
 cm³/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
 Tolerance mm : +0,1

Dimension KF mm : 6,4
Tolerance mm : $\pm 0,2$
MS1 dimension mm : 1,1
Tolerance mm : $+0,15/-0,1$

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 41,4..45,4

Control lever
position YB mm : 40,6..46,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.07.96
Test oil : ISO 4113
Part no. : 0 460 414 140
Pump designation : VE4/11F2100R683

Customer-spec. information

Customer : PSA
Motor : DJ5 TED
Power KW : 80.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 55
Tolerance °C : 1
Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

F19

Plunger stroke mm : 0,88
Tolerance mm : $\pm 0,05$
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Setting mm : 3.5
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Setting hPa : 7.5
Tolerance hPa : 0.2
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 45.4
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 34.6
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 14.3
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2250
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 98.0
Tolerance
cm³/1000 strokes : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1200
SV travel mm : 6.8

Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

SV travel mm : 0.7
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 9.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 5.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s : 20.8

Check tolerance
ccm/10s : 20.8
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2250
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 39.0
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 22.0
 Check tolerance
 cm³/1000S. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2600
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 500

LDA/
 HBA stroke mm : 6.3
 Del. quantity
 cm³/1000 strokes : 44.2
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 49.5
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 48.6
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 63.5
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 45.4
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : 3.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 35.5
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Tolerance mm : 0.3

Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Tolerance mm : 0.1
Check
tolerance mm : 0.1
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 430
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 255
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 strokes : 15.0

Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.3
Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 8,4
Tolerance mm : $\pm 0,2$

MICROSWITCH
SET

: ARF 12,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 19,1..23,1

Control lever
position YB mm : 73,0..87,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.07.96
Test oil : ISO 4113

Part no. : 0 460 414 156
Pump designation : VE4/11F2100R683-1

Customer-spec. information

Customer : PSA
Motor : DJ5 TED
Power KW : 79.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 55
Tolerance °C : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Setting mm : 3.5
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Setting hPa : 7.5
Tolerance hPa : 0.2
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 45.4
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 34.6
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 14.3
Tolerance
cm3/1000 strokes : 1.0

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2250
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 98.0
Tolerance
cm³/1000 strokes : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1200
SV travel mm : 6.8
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12
Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

SV travel mm : 0.7
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 9.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 5.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s : 41.6
Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s : 20.8

Check tolerance
ccm/10s : 20.8
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 39.0

Tolerance
 cm3/1000 strokes : 2.0
 Check tolerance
 cm3/1000S. : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 22.0
 Check tolerance
 cm3/1000S. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2600
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 500
 Del. quantity
 cm3/1000 strokes : 44.2
 Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 49.5
 Tolerance
 cm3/1000 strokes : 2.0
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 48.6
 Tolerance
 cm3/1000 strokes : 2.0
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 63.5
 Tolerance
 cm3/1000 strokes : 2.0
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 45.4
 Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5

IDLE DELIVERY

Rated speed rpm : 400
 Del. quantity
 cm3/1000 strokes : 13.5
 Tolerance
 cm3/1000 strokes : 3.0

Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 35.5
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Tolerance mm : 0.3
Check
tolerance mm : 0.4
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500

F27

Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Tolerance mm : 0.1
Check
tolerance mm : 0.1
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 430
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 255
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3

Tolerance mm : $\pm 0,1$
Dimension KF mm : 8,4
Tolerance mm : $\pm 0,2$

MICROSWITCH
SET

: ARF 12,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 19,1..23,1

Control lever
position YB mm : 73,0..97,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.07.96
Test oil : ISO 4113

Part no. : 0 460 424 097
Pump designation : VE4/12F1300R529

Customer-spec. information
Customer : PERKINS
Motor : T4.40 110TI

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850
Aneroid pressure
hPa : 1200
Setting mm : 1.6
Tolerance mm : 0.1
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1200
Setting hPa : 6.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 75.5
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 61.5
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 24
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 24
Spread
cm3/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1440
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : 30.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 950
Aneroid pressure
hPa : 1200
SV travel mm : 2.7
Tolerance mm : 0.3
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Aneroid pressure
hPa : 1200

SV travel mm : 0.6
Tolerance mm : 0.3
Check
tolerance mm : 0.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200

SV travel mm : 3.3

Tolerance mm : 0.3
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 8.2
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 4.8
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 27.7

Check tolerance
ccm/10s : 27.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1440
Aneroid pressure
hPa : 1200

Del. quantity
cm3/1000 strokes : 50.0
Tolerance
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1500
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 30.0
Check tolerance
cm3/1000S. : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1580
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 550
Del. quantity
cm3/1000 strokes : 71.5
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 78.0
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 75.5

Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 75.5
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5

IDLE DELIVERY

Rated speed rpm : 400

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 strokes : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,4
Tolerance mm : $\pm 0,2$
MS1 dimension mm : 1,15
Tolerance mm : $+0,15/-0,1$
KSB travel mm : 8,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 31,5..33,5

Control lever
position YB mm : 47,7..56,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113
Part no. : 0 460 484 124
Pump designation : VE4/8F2300R598-8

Customer-spec. information
Customer : RENAULT
Motor : F8Q - 620 DDS
Power KW : 45.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.7
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Setting hPa : 5.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 31.5
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 24.5
Tolerance
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 55.0
Tolerance
cm3/1000 strokes : 15.0

Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.7
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 6.3
Tolerance mm : 0.4
Check
tolerance mm : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
SV travel mm : 1.2
Tolerance mm : 0.4
Check
tolerance mm : 0.6
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 7.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Supply pump
pressure bar : 3.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6
Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2
Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 9.5
Check tolerance
cm³/1000s. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2950
 Del. quantity
 cm³/1000 strokes : 2.5
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2250
 Del. quantity
 cm³/1000 strokes : 32.1
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000S. : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1625
 Del. quantity
 cm³/1000 strokes : 31.0
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000
 Del. quantity
 cm³/1000 strokes : 32.5
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000S. : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 31.9
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 31.5
 Tolerance
 cm³/1000 strokes : 0.5
 Check tolerance
 cm³/1000S. : 2.3
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 410
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 410
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 1.5
 Spread
 cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -9.5
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -0.7
 Tolerance
 cm³/1000 strokes : 0.1
 Check tolerance
 cm³/1000S. : 0.1

Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm : 0.2
Check
tolerance mm : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 5,4
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,3
Tolerance mm : $\pm 0,2$

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.07.96
Test oil : ISO 4113
Part no. : 0 460 484 099
Pump designation : VE4/8F2500R611-1

Customer-spec. information
Customer : PSA
Motor : TUD 5-L3
Power KW : 42.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

G09

Plunger stroke mm : 0,8
Tolerance mm : $\pm 0,2$
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 5.0
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Setting hPa : 6.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY
CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2200
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800

SV travel mm : 1.6
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.1
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Supply pump
pressure bar : 4.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2450
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2580
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2800
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 25.5
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000s. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 25.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 15.3
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm : +0,1
Dimension KF mm : 6,0
Tolerance mm : +0,2
Dimension MS mm : 1,0
Tolerance mm : +0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.07.96
Test oil : ISO 4113
Part no. : 0 460 484 100
Pump designation : VE4/8F2500R611-2

Customer-spec. information
Customer : PSA
Motor : TUD5 -L3 ADC
Power KW : 42.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

G12

Plunger stroke mm : 0,8
Tolerance mm : +0,2
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 5.0
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Setting hPa : 6.3
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 2.0
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY
CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2200
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800

SV travel mm : 1.6
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.1
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Supply pump
pressure bar : 4.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2450
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2580
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2800
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000s. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600

Del. quantity
cm3/1000 strokes : 25.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 15.3
Tolerance
cm3/1000 strokes : 1.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 340
Del. quantity
cm3/1000 strokes : 22.5
Tolerance
cm3/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 52.0
Tolerance
cm3/1000 strokes : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm : +0,2
Dimension KF mm : 6,0
Tolerance mm : +0,2
Dimension MS mm : 1,0
Tolerance mm : +0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.07.96
Test oil : ISO 4113

Part no. : 0 460 414 145
Pump designation : VE4/11F2000R686-2

Customer-spec. information
Customer : FORD
Motor : 2.5l DI
Power KW : 56.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,35
Tolerance mm : +-0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 3.2
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Setting hPa : 7.5
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 35.7
Del. quantity
cm3/1000 strokes : 30.6
Tolerance
cm3/1000 strokes : 0.5
Tolerance
cm3/1000 strokes : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 8.3
Tolerance
cm3/1000 strokes : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 32.1
 Tolerance
 cm³/1000 strokes : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 52.5
 Tolerance
 cm³/1000 strokes : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 2.1
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 9.2
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 5.8
 Tolerance hPa : 0.3

Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Supply pump
 pressure bar : 6.9
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s : 22.2
 Check tolerance
 ccm/10s : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s : 34.7

Check tolerance
 ccm/10s : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 32.1
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000s. : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2150
 Del. quantity
 cm³/1000 strokes : 34.9
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000s. : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2425
 Del. quantity
 cm³/1000 strokes : 2.5

Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Aneroid pressure
 hPa :

LDA/
 HBA stroke mm : 7.7

Rated speed rpm : 1950
 Del. quantity
 cm3/1000 strokes : 39.6
 Tolerance
 cm3/1000 strokes : 1.2
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1700
 Del. quantity
 cm3/1000 strokes : 38.7
 Tolerance
 cm3/1000 strokes : 1.2
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 30.6
 Tolerance
 cm3/1000 strokes : 0.2
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 strokes : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 3.0
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 21.3
 Tolerance
 cm3/1000 strokes : 0.5
 Check tolerance
 cm3/1000S. : 2.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 480
 Del. quantity
 cm3/1000 strokes : 30.4
 Tolerance
 cm3/1000 strokes : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm3/1000 strokes : 50.6
 Tolerance
 cm3/1000 strokes : 15.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 7.7

Dimension K mm : 2,8

Tolerance mm : $\pm 0,1$

Dimension KF mm : 8,4

Tolerance mm : $\pm 0,2$

Dimension MS mm : 1,8

Tolerance mm : $\pm 0,2$

MICROSWITCH

SET

: ARF 20,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.06.95
Test oil : ISO 4113

Part no. : 0 460 485 025
Pump designation : VE5/8F2100L633

Customer-spec. information

Customer : VW
Motor : 2,4l SD f. T4
Power KW : 57.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.3
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Setting hPa : 7.4
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 415
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0

Tolerance
 cm3/1000 strokes : 25.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -7.0
 Tolerance
 cm3/1000 strokes : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -0.2
 Tolerance
 cm3/1000 strokes : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -1.2
 Tolerance
 cm3/1000 strokes : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100

SV travel mm : 1.6
 Tolerance mm : 0.4
 Check
 tolerance mm : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
 Supply pump
 pressure bar : 8.1
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Supply pump
 pressure bar : 6.2
 Tolerance hPa : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s : 41.6

Check tolerance
 ccm/10s : 55.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s : 22.2

Check tolerance
 ccm/10s : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
 Del. quantity
 cm3/1000 strokes : 12.0
 Tolerance
 cm3/1000 strokes : 2.0
 Check tolerance
 cm3/1000s. : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm3/1000 strokes : 22.0
 Tolerance
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000s. : 6.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 strokes : 1.0
Check tolerance
cm3/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 33.8
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 36.0
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -10.5
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -1.2
Tolerance
cm3/1000 strokes : 0.1
Check tolerance
cm3/1000S. : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500

Supply pump
pressure bar : -1.0
Tolerance hPa : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm : 0.2
Check
tolerance mm : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 strokes : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 5,8
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,4
Tolerance mm : $\pm 0,2$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 60,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.93
Test oil : ISO 4113
Part no. : 0 460 414 039
Pump designation : VE4/11F1350R257

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8040.25.200+220

TEST BENCH REQUIREMENTS

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,4
Tolerance mm : +0,02
Check
tolerance mm : +0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Setting mm : 4.0
Tolerance mm : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Setting hPa : 6.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 93.0
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000s. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 69.0
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 24
Check tolerance
cm3/1000s. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 24.0

| | |
|-------------------------------|-------|
| Tolerance | |
| cm ³ /1000 strokes | : 2.0 |
| Shutoff solenoid | |
| Volt | : 24 |
| Spread | |
| cm ³ /1000 strokes | : 3.5 |
| Check tolerance | |
| cm ³ /1000S. | : 4.0 |

FULL-LOAD SPEED REGULATION

| | |
|-------------------------------|--------|
| Rated speed rpm | : 1500 |
| Pressure hPa | : 1000 |
| Del. quantity | |
| cm ³ /1000 strokes | : 37.0 |
| Tolerance | |
| cm ³ /1000 strokes | : 3.0 |
| Shutoff solenoid | |
| Volt | : 24 |

STARTING FUEL DELIVERY

| | |
|-------------------------------|---------|
| Rated speed rpm | : 100 |
| Del. quantity | |
| cm ³ /1000 strokes | : 115.0 |
| Tolerance | |
| cm ³ /1000 strokes | : 25.0 |
| Shutoff solenoid | |
| Volt | : 24 |

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

| | |
|------------------|--------|
| Rated speed rpm | : 1350 |
| Aneroid pressure | |
| hPa | : 1000 |
| SV travel mm | : 6.7 |
| Tolerance mm | : 0.4 |
| Check | |
| tolerance mm | : 0.7 |
| Shutoff solenoid | |
| Volt | : 24 |
| Rated speed rpm | : 800 |
| Aneroid pressure | |
| hPa | : 1000 |
| SV travel mm | : 2.1 |
| Tolerance mm | : 0.4 |
| Check | |
| tolerance mm | : 0.7 |
| Shutoff solenoid | |
| Volt | : 24 |

SUPPLY PUMP PRESSURE CHARACTERISTIC

| | |
|------------------|--------|
| Rated speed rpm | : 1350 |
| Aneroid pressure | |
| hPa | : 1000 |
| Supply pump | |
| pressure bar | : 7.3 |
| Tolerance hPa | : 0.3 |
| Shutoff solenoid | |
| Volt | : 24 |

| | |
|------------------|--------|
| Rated speed rpm | : 800 |
| Rated speed rpm | : 500 |
| Aneroid pressure | |
| hPa | : 1000 |
| Supply pump | |
| pressure bar | : 3.9 |
| Tolerance hPa | : 0.3 |
| Shutoff solenoid | |
| Volt | : 24 |

OVERFLOW QUANTITY

| | |
|-------------------|--------|
| Rated speed rpm | : 1350 |
| Aneroid pressure | |
| hPa | : 1000 |
| Overflow quantity | |
| ccm/10s | : 97.2 |
| Tolerance | |
| ccm/10s | : 41.6 |

| | |
|------------------|--------|
| Check tolerance | |
| ccm/10s | : 41.6 |
| Shutoff solenoid | |
| Volt | : 24 |

| | |
|-------------------|--------|
| Rated speed rpm | : 500 |
| Aneroid pressure | |
| hPa | : 1000 |
| Overflow quantity | |
| ccm/10s | : 63.8 |
| Tolerance | |
| ccm/10s | : 22.2 |

| | |
|------------------|--------|
| Check tolerance | |
| ccm/10s | : 22.2 |
| Shutoff solenoid | |
| Volt | : 24 |

DELIVERY AND BREAKAWAY CHARACTERISTIC

| | |
|-------------------------------|--------|
| Rated speed rpm | : 1500 |
| Aneroid pressure | |
| hPa | : 1000 |
| Del. quantity | |
| cm ³ /1000 strokes | : 37.0 |
| Tolerance | |
| cm ³ /1000 strokes | : 3.0 |

Check tolerance
cm³/1000S. : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 250
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 90.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 89.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : 0.5

Check tolerance
cm³/1000S. : 3.5
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

IDLE DELIVERY

Rated speed rpm : 430
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : 25.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
Dimension KF mm : 5,3
Tolerance mm : $\pm 0,02$
Dimension MS mm : 1,4
Tolerance mm : $\pm 0,2$

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.01.87
Test oil : ISO 4113
Part no. : 0 460 414 047
Pump designation : VE4/11F1200R277

Customer-spec. information
Customer : CASE
Motor : D 268/885

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde assembly : 1 688 901 020

Opening pressure bar : 172
Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800

Setting mm : 5.5
Tolerance mm : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 800

Setting hPa : 4.0
Tolerance hPa : 0.3

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity cm3/1000 strokes : 82.0
Tolerance cm3/1000 strokes : 0.5
Spread cm3/1000 strokes : 3.5

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm3/1000 strokes : 18.5
Tolerance cm3/1000 strokes : 2.0
Spread cm3/1000 strokes : 3.0
Check tolerance cm3/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1260
Del. quantity cm3/1000 strokes : 57.0
Tolerance cm3/1000 strokes : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm3/1000 strokes : 110.0
Tolerance cm3/1000 strokes : 25.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1150

SV travel mm : 7.8
Tolerance mm : 0.4

Check
tolerance mm : 0.7

Rated speed rpm : 500

SV travel mm : 3.0
Tolerance mm : 0.4

Check
tolerance mm : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1150
Supply pump
pressure bar : 5.3
Tolerance hPa : 0.3

Rated speed rpm : 500
Supply pump
pressure bar : 2.9
Tolerance hPa : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1150
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1260
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 1370
Del. quantity
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0

Rated speed rpm : 1400

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

Rated speed rpm : 1320
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : 15.0
Check tolerance
cm³/1000S. : 15.0

Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 85.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 77.5
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.5

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm3/1000S. : 2.0

START TRANSITION

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 strokes : 10.0

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 105.0
Tolerance
cm3/1000 strokes : 25.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : $\pm 0,1$
Dimension KF mm : 5,5
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,3
Tolerance mm : $\pm 0,2$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 50,1..58,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 17.08.94
Test oil : ISO 4113

Part no. : 0 460 426 149
Pump designation : VE6/12F1250R373-3

Customer-spec. information
Customer : CDC
Motor : 6 BTA-590

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,85
Tolerance mm : $\pm 0,02$
Outlet : D

Prestroke

H02

(as of UT) mm : 0,3
Tolerance mm : $\pm 0,02$
Check tolerance mm : $\pm 0,04$

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure hPa : 1000

Setting mm : 1.6
Tolerance mm : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000

Setting hPa : 3.5
Tolerance hPa : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 82.5
Tolerance cm³/1000 strokes : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 40.5
Tolerance cm³/1000 strokes : 0.5
Check tolerance cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 375
Del. quantity cm³/1000 strokes : 6.0
Tolerance cm³/1000 strokes : 2.0
Spread cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1300
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 strokes : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : 25.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000

SV travel mm : 2.7
Tolerance mm : 0.4
Check
tolerance mm : 0.7

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

SV travel mm : 0.8
Tolerance mm : 0.4
Check
tolerance mm : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.6
Tolerance hPa : 0.3

Rated speed rpm : 500
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 2.4
Tolerance hPa : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s : 20.8

Check tolerance
ccm/10s : 20.8

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1300
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 1330
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 35.0
Check tolerance
cm³/1000S. : 20.0

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

Rated speed rpm : 700
Aneroid pressure
hPa : 450

Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 strokes : 4.0

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000S. : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000S. : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 2.0

START TRANSITION

Rated speed rpm : 420
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 20.0

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : 25.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm : $\pm 0,2$
MS1 dimension mm : 1,6
Tolerance mm : $\pm 0,15/-0,1$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,7..48,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.07.96
Test oil : ISO 4113
Part no. : 0 460 494 362
Pump designation : VE4/9F2300R597-1

Customer-spec. information
Customer : VW
Motor : 1,9 L UD A3/B4

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overf(~~low~~)
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,8
Tolerance mm : $\pm 0,02$
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Setting mm : 4.4
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Setting hPa : 5.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 strokes : 0.5
Spread
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Check tolerance
cm³/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 strokes : 0.5

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Pressure hPa : 750
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -5.5
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -2.0
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
SV travel mm : 8.3
Tolerance mm : 0.3
Check
tolerance mm : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 750
SV travel mm : 1.8
Tolerance mm : 0.3
Check
tolerance mm : 0.8
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Supply pump
pressure bar : 7.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 750
Supply pump
pressure bar : 4.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s : 22.2
Check tolerance
ccm/10s : 34.7

Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 55.5
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 37.5
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 43.0

Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000s. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 40.2
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000s. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 180
Tolerance
cm³/1000 strokes : 0.5
Check tolerance
cm³/1000s. : 0.5
Check tolerance
cm³/1000s. : 0.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 300
Del. quantity
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 1.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 1.5
 Spread
 cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -9.0
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -2.0
 Tolerance
 cm³/1000 strokes : 0.1
 Check tolerance
 cm³/1000S. : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5

Check tolerance
 cm³/1000S. : 1.5
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Supply pump
 pressure bar : -1.2
 Tolerance hPa : 0.2
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm : 0.2
 Check
 tolerance mm : 0.6
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 750
 Del. quantity
 cm³/1000 strokes : 35.0
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000S. : 3.0
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 380
 Del. quantity
 cm³/1000 strokes : 41.0
 Tolerance
 cm³/1000 strokes : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 180
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 strokes : 10.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm : $\pm 0,1$
Dimension KF mm : 6,0
Tolerance mm : $\pm 0,2$
Dimension MS mm : 1,2
Tolerance mm : $\pm 0,2$

MICROSWITCH
SET

mm : 0,8...3,0
: ARF 12,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,6..41,6

Control lever
position YB mm : 50,4..53,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.94
Test oil : ISO 4113

Part no. : 0 460 494 373
Pump designation : VE4/9F2300R597-4

Customer-spec. information
Customer : VW
Motor : 1,9 L UD A3

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

H10

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Setting mm : 4.4
Tolerance mm : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Setting hPa : 5.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 50.5
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000s. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Check tolerance
cm3/1000s. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 7.5
Tolerance
cm3/1000 strokes : 0.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Pressure hPa : 750
Del. quantity
cm3/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -5.5
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -2.0
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Tolerance mm : 0.3

Check
tolerance mm : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 750

SV travel mm : 1.8
Tolerance mm : 0.3
Check
tolerance mm : 0.8
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Supply pump
pressure bar : 7.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 750
Supply pump
pressure bar : 4.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 34.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 55.5
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 37.5
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 43.0
Tolerance
cm3/1000 strokes : 1.0
Check tolerance
cm3/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 40.2

Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 50.5
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 180
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 0.5
Check tolerance
cm3/1000S. : 0.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 300
Del. quantity
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 1.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 1.5
Spread
cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -9.0
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -2.0
Tolerance
cm³/1000 strokes : 0.1
Check tolerance
cm³/1000S. : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 strokes : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -1.2
Tolerance hPa : 0.2

Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm : 0.2
Check
tolerance mm : 0.6
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : 1.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm : +0,1
Dimension KF mm : 6,0
Tolerance mm : +0,2
Dimension MS mm : 1,2
Tolerance mm : +0,2

MICROSWITCH
SET

mm : 0,8...3,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.08.95
Test oil : ISO 4113

Part no. : 0 460 494 414
Pump designation : VE4/9F2300R597-5

Customer-spec. information

Customer : VW
Motor : 1,9 L UD A3 / B4
Power KW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde assembly : 1 688 901 000

Opening pressure bar : 147
Tolerance bar : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure hPa : 750
Setting mm : 4.4
Tolerance mm : 0.1
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 750
Setting hPa : 5.7
Tolerance hPa : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure hPa : 750
Del. quantity cm3/1000 strokes : 50.5
Tolerance cm3/1000 strokes : 0.5
Spread cm3/1000 strokes : 2.5
Check tolerance cm3/1000S. : 3.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Check tolerance cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity cm3/1000 strokes : 7.5
Tolerance cm3/1000 strokes : 0.5
Shutoff solenoid Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Pressure hPa : 750

Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -5.5
Tolerance
cm³/1000 strokes : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -2.0
Tolerance
cm³/1000 strokes : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100

Aneroid pressure
hPa : 750
Tolerance mm : 0.3
Check
tolerance mm : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 750

SV travel mm : 1.8
Tolerance mm : 0.3
Check
tolerance mm : 0.8
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Supply pump
pressure bar : 7.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 750
Supply pump
pressure bar : 4.6
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s : 22.2
Check tolerance
ccm/10s : 34.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Overflow quantity
ccm/10s : 97.2

Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 55.5

Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600

Aneroid pressure
hPa : 750

Del. quantity
cm³/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 4.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 2400

Aneroid pressure
hPa : 750

Del. quantity
cm³/1000 strokes : 37.5

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 6.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 2750

Aneroid pressure
hPa : 750

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 strokes : 1.5

Check tolerance
cm³/1000S. : 1.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 2100

Aneroid pressure
hPa : 750

Del. quantity
cm³/1000 strokes : 43.0

Tolerance
cm³/1000 strokes : 1.0

Check tolerance
cm³/1000S. : 2.2

Shutoff solenoid
Volt : 12

Rated speed rpm : 450

Del. quantity
cm³/1000 strokes : 40.2

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

Aneroid pressure
hPa : 750

Del. quantity
cm³/1000 strokes : 50.5

Tolerance
cm³/1000 strokes : 0.5

Check tolerance
cm³/1000S. : 2.2

Shutoff solenoid
Volt : 12

Rated speed rpm : 700

Aneroid pressure
hPa : 180

Tolerance
cm³/1000 strokes : 0.5

Check tolerance
cm³/1000S. : 0.5

Check tolerance
cm³/1000S. : 0.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 700

Aneroid pressure
hPa : 300

Del. quantity
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 1.0

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 450

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 strokes : 1.5

Check tolerance
cm³/1000S. : 1.5

Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000s. : 1.5
 Spread
 cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -9.0
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000s. : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -2.0
 Tolerance
 cm³/1000 strokes : 0.1
 Check tolerance
 cm³/1000s. : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000s. : 1.5
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250

Supply pump
 pressure bar : -1.2
 Tolerance hPa : 0.2
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm : 0.2
 Check
 tolerance mm : 0.6
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 750
 Del. quantity
 cm³/1000 strokes : 35.0
 Tolerance
 cm³/1000 strokes : 1.0
 Check tolerance
 cm³/1000s. : 3.0
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 380
 Del. quantity
 cm³/1000 strokes : 41.0
 Tolerance
 cm³/1000 strokes : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 180
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 strokes : 10.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
 Tolerance mm : +0,1
 Dimension KF mm : 6,0
 Tolerance mm : +0,2
 Dimension MS mm : 1,2
 Tolerance mm : +0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,6..41,6

Control lever
position YB mm : 49,9..53,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113

Part no. : 0 460 494 404
Pump designation : VE4/9F2150R637-1

Customer-spec. information
Customer : NISSAN-MISA
Motor : GX-3
Power KW : 53.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

H2O

TIMING DEVICE TRAVEL

Rated speed rpm : 1200
Setting mm : 3.2
Tolerance mm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Setting hPa : 5.9
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 2150
Del. quantity
cm3/1000 strokes : 44.5
Tolerance
cm3/1000 strokes : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 8.5
Tolerance
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 60.0

Tolerance
cm³/1000 strokes : 15.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2150
SV travel mm : 9.2
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
SV travel mm : 1.2
Tolerance mm : 0.4
Check
tolerance mm : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2150
Supply pump
pressure bar : 8.7
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Supply pump
pressure bar : 5.0
Tolerance hPa : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s : 41.6

Check tolerance
ccm/10s : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s : 22.2

Check tolerance
ccm/10s : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2350
Del. quantity
cm³/1000 strokes : 33.3
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2700
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000s. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 42.2
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 43.2
Tolerance
cm³/1000 strokes : 1.5
Check tolerance
cm³/1000s. : 2.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 1800
Del. quantity
cm3/1000 strokes : 44.3
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Del. quantity
cm3/1000 strokes : 44.5
Tolerance
cm3/1000 strokes : 0.5
Check tolerance
cm3/1000S. : 1.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 1.5

Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 strokes : 1.5
Check tolerance
cm3/1000S. : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 45.0
Tolerance
cm3/1000 strokes : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 270
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 strokes : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm : +0,1
Dimension KF mm : 5,4
Tolerance mm : +0,2
Dimension MS mm : 1,2
Tolerance mm : +0,2
TLA travel mm : 6,5

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 35,1..39,1

Control lever
position YB mm : 56,9..68,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.08.95
Test oil : ISO 4113

Combination No. : 0 400 075 922

Injection pump
Pump designation : PES5M55C320RS168
EP type number : 0 410 055 978

Governor
Governor design. : RSF350/2000M56-15
Governor no. : 0 420 021 272

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM602-2.9L
Power KW : 69.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

H24

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 38.5
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Speed
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 5.30

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 6.5

cm³/1000 strokes : \pm 0.5

Speed

cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm³/1000 strokes : 38.5

cm³/1000 strokes : \pm 0.5

Check tolerance

cm³/1000S. : \pm 1.5

Speed

cm³/1000 strokes : 2.5

Check tolerance

cm³/1000S. : 3.0

RATED SPEED

control lever

position degree : 50.0

Rated speed rpm : 2200

rack travel mm : 8.90

Tolerance mm : \pm 0.25

Rated speed rpm : 2550

rack travel mm : 0.50

Tolerance mm : \pm 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever

position degree : 14.0

tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 5.30

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450

rack travel mm : 4.10

Tolerance mm : \pm 0.10

Load pick-up

Rated speed rpm : 250

rack travel mm : 10.50

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.30

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.15

Tolerance mm : \pm 0.05

Rated speed rpm : 1800

rack travel mm : 12.00

Tolerance mm : \pm 0.10

Rated speed rpm : 2000

rack travel mm : 11.80

Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 940

rack travel mm : -0.10

Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 900
 rack travel mm : -0.40
 Tolerance mm : \pm 0.10

Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -1.50
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1800
 Del. quantity
 cm³/1000 strokes : 40.8
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spreed
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 2000
 Spreed
 Del. quantity
 cm³/1000 strokes : 41.0
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 2.0
 Spreed
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 2200
 rack travel mm : 8.90
 Tolerance mm : \pm 0.25
 Del. quantity
 cm³/1000 strokes : 31.0
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 3.0
 Spreed
 cm³/1000 strokes : 2.5

Check tolerance
 cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 21.60
 Tolerance mm : \pm 1.50
 Del. quantity
 cm³/1000 strokes : 59.0
 cm³/1000 strokes : \pm 4.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 7.8
 Check tolerance
 cm³/1000S. : \pm 2.3
 Spreed
 Check tolerance
 cm³/1000S. : 1.5

control lever
 position degree : > 47.00

control lever
 position degree : < 44.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
 position degree : 14.0
 tolerance degree : \pm 2.0

Rated speed rpm : 400

Rack travel in mm : 6.10
 Tolerance mm : \pm 0.80
 Del. quantity
 cm³/1000 strokes : 11.0

cm3/1000 strokes : +- 3.5
Check tolerance
cm3/1000s. : +- 4.5
Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.95
Test oil : ISO 4113

Combination No. : 0 402 698 804

Injection pump
Pump designation : PE8P120A720LS7205
EP type number : 0 412 628 895

Governor
Governor design. : RE30
Governor no. : 0 421 890 007

Cust. part No. : 1328039

Customer-spec. information
Customer : SCANIA
Motor : DSC1409,DSC1416

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4
: - 5- 6- 8

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 248.0
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 224.0
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.060
Del. quantity
cm³/1000 strokes : 16.0
cm³/1000 strokes : +/- 3.0
Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.95
Test oil : ISO 4113
Combination No. : 0 402 698 806
Injection pump
Pump designation : PE8P120A720LS7331
EP type number : 0 412 628 896
Governor
Governor design. : RE30
Governor no. : 0 421 890 022

Cust. part No. : 1362097

Customer-spec. information
Customer : SCANIA
Motor : DSC1409, DSC1416

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 104
Opening pressure
bar : 251.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 2- 7- 3- 4
 : - 5- 6- 8
Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75
Barrel no. : 1
Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 248.0
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spread
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 224.0
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.060
Del. quantity
cm³/1000 strokes : 16.0
cm³/1000 strokes : +/- 3.0
Spread
cm³/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.10.95
Test oil : ISO 4113

Combination No. : 0 401 846 859

Injection pump
Pump designation : PE6P110A72ORS3289
EP type number : 0 411 826 776

Governor
Governor design. : RQV200...1100PA555
 : -5
Governor no. : 0 421 813 470

Cust. part No. : 1333234

Customer-spec. information
Customer : SCANIA
Motor : DS11 63A

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : 0.30
Check
tolerance °NW : 0.50

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

| | |
|---------------------|--------|
| <hr/> | |
| Del. quantity | |
| cm3/1000 strokes : | 172.0 |
| <hr/> | |
| cm3/1000 strokes : | + 1.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. : | + 4.0 |
| <hr/> | |
| Spreed | |
| cm3/1000 strokes : | 8.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. : | 12.0 |
| <hr/> | |
| Rated speed rpm : | 325 |
| <hr/> | |
| Rack travel in mm : | 6.60 |
| Tolerance mm : | + 0.10 |
| Del. quantity | |
| cm3/1000 strokes : | 22.0 |
| cm3/1000 strokes : | + 3.0 |
| Check tolerance | |
| cm3/1000S. : | + 6.0 |
| Spreed | |
| cm3/1000 strokes : | 4.0 |
| Check tolerance | |
| cm3/1000S. : | 8.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-------------------|--------|
| Rated speed rpm : | 225 |
| guide sleeve | |
| travel mm : | 0.65 |
| Tolerance mm : | + 0.20 |
| <hr/> | |
| Rated speed rpm : | 1155 |
| guide sleeve | |
| travel mm : | 8.50 |
| Tolerance mm : | + 0.15 |
| <hr/> | |
| Rated speed rpm : | 719 |
| guide sleeve | |
| travel mm : | 5.54 |
| Tolerance mm : | + 0.25 |
| <hr/> | |
| Rated speed rpm : | 430 |
| guide sleeve | |
| travel mm : | 3.90 |
| Tolerance mm : | + 0.25 |
| <hr/> | |
| Rated speed rpm : | 1440 |
| guide sleeve | |
| travel mm : | 11.50 |

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

| | |
|---------------------|--------|
| Rated speed rpm : | 1278 |
| Rack travel in mm : | 9.45 |
| Tolerance mm : | + 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--------------------|-------|
| Rated speed rpm : | 700 |
| Aneroid pressure | |
| hPa : | - |
| Del. quantity | |
| cm3/1000 strokes : | 172.0 |
| cm3/1000 strokes : | + 1.0 |
| Check tolerance | |
| cm3/1000S. : | + 4.0 |
| Spreed | |
| cm3/1000 strokes : | 8.0 |
| Check tolerance | |
| cm3/1000S. : | 12.0 |

CONTROL LEVER

| | |
|--------------------|-------|
| control lever | |
| position degree : | 60.0 |
| tolerance degree : | + 4.0 |

| | |
|--------------------|-------|
| control lever | |
| position degree : | 115.0 |
| tolerance degree : | + 4.0 |

RATED SPEED

| | |
|-------------------|--------|
| rack travel mm : | 11.30 |
| Rated speed rpm : | 1145 |
| Tolerance 1/min : | + 5 |
| <hr/> | |
| rack travel mm : | 4.00 |
| Rated speed rpm : | 1250 |
| Tolerance 1/min : | + 15 |
| <hr/> | |
| rack travel mm : | 0.50 |
| Tolerance mm : | + 0.50 |
| Rated speed rpm : | 1400 |

LOW IDLE

| | |
|--------------------|-------|
| control lever | |
| position degree : | 63.0 |
| tolerance degree : | + 4.0 |

control lever
position degree : 8.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 6.60
Tolerance mm : \pm 0.10

Rated speed rpm : 225
CRT mm min. : $>$ 6.50

Rated speed rpm : 310

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.35
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.35
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.00
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 140
rack travel mm : 10.80
Tolerance mm : \pm 0.15

Pressure hPa : 200
rack travel mm : 11.75
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

J08

Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 164.0
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 114.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.30
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 265.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 24.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 22.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.01.96
Test oil : ISO 4113

Combination No. : 0 400 075 929

Injection pump
Pump designation : PES5M55C320RS177
EP type number : 0 410 055 974

Governor
Governor design. : RSF340/2300M64-18
Governor no. : 0 420 021 159

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM602A-USA
Power Kw : 92.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 52.2

cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Spreed
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 315

Rack travel in mm : 6.20

Tolerance mm : \pm 0.10

Del. quantity

cm3/1000 strokes : 8.5

cm3/1000 strokes : \pm 0.5

Spreed

cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50

Tolerance mm : \pm 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity

cm3/1000 strokes : 52.2

cm3/1000 strokes : \pm 0.5

Check tolerance

cm3/1000S. : \pm 1.5

Spreed

cm3/1000 strokes : 2.5

Check tolerance

cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 2500
rack travel mm : 8.70
Tolerance mm : \pm 0.20

Rated speed rpm : 2950
rack travel mm : 0.50
Tolerance mm : \pm 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.75

LOW IDLE

control lever

position degree : 10.0

tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 315

rack travel mm : 6.20

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400

rack travel mm : 4.60

Tolerance mm : \pm 0.10

Load pick-up

Rated speed rpm : 250

rack travel mm : $>$ 8.00

Rated speed rpm : 1000

CRT mm max. : 1.75

rack travel mm : 6.20

Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 13.75

Tolerance mm : \pm 0.05

Rated speed rpm : 1600

rack travel mm : 13.10

Tolerance mm : \pm 0.10

Rated speed rpm : 2200

rack travel mm : 12.30

Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1600

rack travel mm : -0.45

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -3.05
Tolerance mm : \pm 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -5.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1600
Del. quantity
cm³/1000 strokes : 50.8
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 49.5
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 36.5
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 36.5
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2500
rack travel mm : 8.70
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 32.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.10
Del. quantity
cm³/1000 strokes : 58.8
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 315
Del. quantity
cm³/1000 strokes : 8.7
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

control lever
position degree : > 35.50

control lever
position degree : < 33.00

SETTING PNEUMATIC FAST IDLE (PLA)
(PLA) POSITION

control lever
position degree : 10.0
tolerance degree : ± 2.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

Rated speed rpm : 340

Rack travel in mm : 13.80
Tolerance mm : ± 0.70
Del. quantity
cm³/1000 strokes : 48.0
cm³/1000 strokes : ± 3.5

Current A : 1.80

Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : ± 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Test with KDEP-P400

TESTING

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1850

Set quantity with
control lever

cm³/1000 strokes : 22.0

cm³/1000 strokes : ± 0.5

Voltage Volt : 1.636

Tolerance Volt : ± 0.003

Check tolerance

Volt : ± 0.001

ADJUSTMENT

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1850

Rack travel in mm

Voltage Volt : 2.487

Tolerance Volt : ± 0.030

Check tolerance

Volt : ± 0.060

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 315

Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.03.96
Test oil : ISO 4113

Combination No. : 0 402 646 760

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQ300/1050PA1030-23
Governor no. : 0 421 801 769

Cust. part No. : 0260743502

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.20

Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 13.0

cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spreed
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.78
Tolerance mm : + 0.10

Rated speed rpm : 1104
guide sleeve
travel mm : 6.51
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 421
guide sleeve
travel mm : 4.00
Tolerance mm : + 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1270

guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550

Aneroid pressure

hPa : 1000

Del. quantity

cm3/1000 strokes : 230.0

cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.80
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 405
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm min. : $>$ 7.00

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.50
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 129.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 13.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.06.96
Test oil : ISO 4113

Combination No. : 0 400 074 886

Injection pump
Pump designation : PES4M55C320RS167
EP type number : 0 410 054 960

Governor
Governor design. : RSF400/2000M55-7
Governor no. : 0 420 021 268

Cust. part No. :

Customer-spec. information
Customer : DPICO
Motor : OM601-2.3l (Dom)
Power KW : 58.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 2.05
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 21.00
Tolerance mm : +- 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : +- 0.20
Check
tolerance °NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 38.5

cm³/1000 strokes : +- 0.5

Check tolerance
cm³/1000S. : +- 1.5

Speed
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 6.5
cm³/1000 strokes : ± 0.5
Spreed
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : ± 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : -
Del. quantity
cm³/1000 strokes : 38.5
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 1.5
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 2250
rack travel mm : 7.70
Tolerance mm : ± 0.25

Rated speed rpm : 2550
rack travel mm : 0.50
Tolerance mm : ± 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000
CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : ± 2.0

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 3.50
Tolerance mm : ± 0.10

Load pick-up

Rated speed rpm : 250
rack travel mm : 12.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.10
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : ± 0.05

Rated speed rpm : 1800
rack travel mm : 11.90
Tolerance mm : ± 0.10

Rated speed rpm : 2000
rack travel mm : 11.80
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 40.8
cm³/1000 strokes : ± 0.8
Check tolerance
cm³/1000S. : ± 1.8
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 2000

Spreed
Del. quantity
cm3/1000 strokes : 41.0
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 2.0
Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 2250
rack travel mm : 7.70
Tolerance mm : + 0.25
Del. quantity
cm3/1000 strokes : 25.5
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 3.0
Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : + 1.50
Del. quantity
cm3/1000 strokes : 59.0
cm3/1000 strokes : + 4.0
Check tolerance
cm3/1000S. : + 5.0
Spreed
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 5.10
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : + 2.3
Spreed

Check tolerance
cm3/1000S. : 1.5

control lever
position degree : > 47.00

control lever
position degree : < 44.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
position degree : 14.0
tolerance degree : + 2.0

Rated speed rpm : 425

Rack travel in mm : 8.80
Tolerance mm : + 0.80
Del. quantity
cm3/1000 strokes : 23.0
cm3/1000 strokes : + 3.5
Check tolerance
cm3/1000S. : + 4.5
Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 400
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.07.96
Test oil : ISO 4113

Combination No. : 0 402 746 647

Injection pump
Pump designation : PES6P120A72ORS7366
EP type number : 0 412 726 933

Governor
Governor design. : RQV275...11D0PA1208K
Governor no. : 0 421 815 459

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8460.41.4000

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 273.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

| | |
|----------------------|------|
| Spreed | |
| cm3/1000 strokes : | 5.0 |
| Check tolerance | |
| cm3/1000S. : | 9.0 |
| Rated speed rpm : | 275 |
| Rack travel in mm : | 6.80 |
| Tolerance mm : + | 0.10 |
| Del. quantity | |
| cm3/1000 strokes : | 23.0 |
| cm3/1000 strokes : + | 3.0 |
| Check tolerance | |
| cm3/1000S. : + | 6.0 |
| Spreed | |
| cm3/1000 strokes : | 8.0 |
| Check tolerance | |
| cm3/1000S. : | 12.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-------------------|-------|
| Rated speed rpm : | 275 |
| guide sleeve | |
| travel mm : | 1.70 |
| Tolerance mm : + | 0.20 |
| Rated speed rpm : | 1155 |
| guide sleeve | |
| travel mm : | 9.75 |
| Tolerance mm : + | 0.15 |
| Rated speed rpm : | 790 |
| guide sleeve | |
| travel mm : | 6.42 |
| Tolerance mm : + | 0.25 |
| Rated speed rpm : | 460 |
| guide sleeve | |
| travel mm : | 3.77 |
| Tolerance mm : + | 0.25 |
| Rated speed rpm : | 1440 |
| guide sleeve | |
| travel mm : | 13.50 |
| Tolerance mm : + | 0.50 |

GUIDE SLEEVE POSITION

| | |
|---------------------|-------|
| Rated speed rpm : | 1310 |
| Rack travel in mm : | 10.00 |

| | |
|----------------|--------|
| Tolerance mm : | + 2.70 |
|----------------|--------|

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|----------------------|-------|
| Rated speed rpm : | 1100 |
| Aneroid pressure | |
| hPa : | 1200 |
| Del. quantity | |
| cm3/1000 strokes : | 273.0 |
| cm3/1000 strokes : + | 1.0 |
| Check tolerance | |
| cm3/1000S. : + | 4.0 |
| Spreed | |
| cm3/1000 strokes : | 5.0 |
| Check tolerance | |
| cm3/1000S. : | 9.0 |

CONTROL LEVER

| | |
|----------------------|-------|
| control lever | |
| position degree : | 117.0 |
| tolerance degree : + | 4.0 |

RATED SPEED

| | |
|---------------------|-------|
| rack travel mm : | 11.70 |
| Rated speed rpm : | 1145 |
| Tolerance 1/min : + | 5 |
| rack travel mm : | 4.00 |
| Rated speed rpm : | 1260 |
| Tolerance 1/min : + | 15 |
| rack travel mm : | 0.50 |
| Tolerance mm : + | 0.50 |
| Rated speed rpm : | 1350 |

LOW IDLE

| | |
|----------------------|------|
| control lever | |
| position degree : | 76.0 |
| tolerance degree : + | 4.0 |

Testing:

| | |
|-------------------|--------|
| Rated speed rpm : | 275 |
| rack travel mm : | 6.80 |
| Tolerance mm : + | 0.10 |
| Rated speed rpm : | 100 |
| CRT mm min. : | > 8.30 |
| Rated speed rpm : | 335 |

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 13.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 13.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200
rack travel mm : 13.40
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 800
rack travel mm : 9.70
Tolerance mm : \pm 0.10

Rated speed rpm : 800

Pressure hPa : 290
rack travel mm : 10.70
Tolerance mm : \pm 0.20

Pressure hPa : 520
rack travel mm : 12.50
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 170
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 150
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 290.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 264.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 144.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.70
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 120.0
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm³/1000 strokes : 23.0

cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0
Speed
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.07.96
Test oil : ISO 4113

Combination No. : 0 400 074 886

Injection pump
Pump designation : PES4M55C320RS167
EP type number : 0 410 054 960

Governor
Governor design. : RSF375/2000M55-7
Governor no. : 0 420 021 268

Cust. part No. :

Customer-spec. information

Customer : DPICO
Motor : OM601-2.3l (Dom)
Power KW : 58.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

J25

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 38.5

cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 6.5
cm³/1000 strokes : ± 0.5
Spreed
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : ± 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : -
Del. quantity
cm³/1000 strokes : 38.5
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 1.5
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 2200
rack travel mm : 8.90
Tolerance mm : ± 0.25

Rated speed rpm : 2550
rack travel mm : 0.50
Tolerance mm : ± 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000
CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : ± 2.0

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450
rack travel mm : 3.90
Tolerance mm : ± 0.10

Load pick-up

Rated speed rpm : 250
rack travel mm : 11.50

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.20
Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : ± 0.05

Rated speed rpm : 1800
rack travel mm : 11.90
Tolerance mm : ± 0.10

Rated speed rpm : 2000
rack travel mm : 11.80
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 40.8
cm³/1000 strokes : ± 0.8
Check tolerance
cm³/1000S. : ± 1.8
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 2000

Spreed
Del. quantity
cm3/1000 strokes : 41.0
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 2.0
Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 2200
rack travel mm : 8.90
Tolerance mm : + 0.25
Del. quantity
cm3/1000 strokes : 31.0
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 3.0
Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : + 1.50
Del. quantity
cm3/1000 strokes : 59.0
cm3/1000 strokes : + 4.0
Check tolerance
cm3/1000S. : + 5.0
Spreed
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Rated speed rpm : 375
rack travel mm : 5.20
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : + 2.3
Spreed

Check tolerance
cm3/1000S. : 1.5

control lever
position degree : > 47.00

control lever
position degree : < 44.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
position degree : 14.0
tolerance degree : + 2.0

Rated speed rpm : 425

Rack travel in mm : 7.30
Tolerance mm : + 0.80

Del. quantity
cm3/1000 strokes : 16.0
cm3/1000 strokes : + 3.5
Check tolerance
cm3/1000S. : + 4.5
Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.07.96
Test oil : ISO 4113
Combination No. : 0 400 075 923
Injection pump
Pump designation : PES5M55C320RS168
EP type number : 0 410 055 978

Governor
Governor design. : RSF350/2000M55-8
Governor no. : 0 420 021 269

Cust. part No. :

Customer-spec. information
Customer : DPICO
Motor : OM602-2.9L (Dom)
Power KW : 69.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

J28

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 38.5

cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Speed
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000s. : 3.0

Rated speed rpm : 350
Rack travel in mm : 5.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 6.5
cm³/1000 strokes : \pm 0.5
Spreed
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : -
Del. quantity
cm³/1000 strokes : 38.5
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spreed
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0
Rated speed rpm : 2200
rack travel mm : 8.90
Tolerance mm : \pm 0.25
Rated speed rpm : 2550
rack travel mm : 0.50
Tolerance mm : \pm 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000
CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.30

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450
rack travel mm : 4.10
Tolerance mm : \pm 0.10

Load pick-up

Rated speed rpm : 250
rack travel mm : 10.50

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.30
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 1800
rack travel mm : 12.00
Tolerance mm : \pm 0.10

Rated speed rpm : 2000
rack travel mm : 11.80
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 40.8
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8

Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 2000
Spreed

Del. quantity
cm3/1000 strokes : 41.0
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 2.0

Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 2200
rack travel mm : 8.90
Tolerance mm : +- 0.25

Del. quantity
cm3/1000 strokes : 31.0
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 3.0

Spreed
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : +- 1.50

Del. quantity
cm3/1000 strokes : 59.0
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 5.0

Spreed
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Rated speed rpm : 350

K02

Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : +- 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

control lever
position degree : > 47.00

control lever
position degree : < 44.50

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever
position degree : 14.0
tolerance degree : +- 2.0

Rated speed rpm : 400

Rack travel in mm : 6.10
Tolerance mm : +- 0.80

Del. quantity
cm3/1000 strokes : 11.0
cm3/1000 strokes : +- 3.5
Check tolerance
cm3/1000S. : +- 4.5
Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 11.09.96
Test oil :

Combination No. : 9 400 085 303

Injection pump
Pump designation : PES6A95D410RS2714
EP type number : 9 400 084 001

Governor
Governor design. : RQV375...1300AB1208
: -3L
Governor no. : 9 420 080 263

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6,6 TC
Power KW : 127.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

K03

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 3.20
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Beginning of delivery differende

and maximum rack
travel : 10.95
Tolerance mm : +- 1.95
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.15
Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 87.0

cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

| | |
|---------------------|--------|
| Spreed | |
| cm3/1000 strokes : | 3.5 |
| Check tolerance | |
| cm3/1000S. : | 8.0 |
| Rated speed rpm : | 375 |
| Rack travel in mm : | 6.50 |
| Tolerance mm : | + 0.10 |
| Del. quantity | |
| cm3/1000 strokes : | 9.0 |
| cm3/1000 strokes : | + 2.0 |
| Check tolerance | |
| cm3/1000S. : | + 4.5 |
| Spreed | |
| cm3/1000 strokes : | 5.5 |
| Check tolerance | |
| cm3/1000S. : | 9.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-------------------|--------|
| Rated speed rpm : | 1345 |
| guide sleeve | |
| travel mm : | 8.55 |
| Tolerance mm : | + 0.05 |
| Rated speed rpm : | 1100 |
| guide sleeve | |
| travel mm : | 6.45 |
| Tolerance mm : | + 0.15 |
| Rated speed rpm : | 350 |
| guide sleeve | |
| travel mm : | 1.45 |
| Tolerance mm : | + 0.15 |
| Rated speed rpm : | 700 |
| guide sleeve | |
| travel mm : | 4.30 |
| Tolerance mm : | + 0.20 |

GUIDE SLEEVE POSITION

| | |
|---------------------|--------|
| Rated speed rpm : | 1345 |
| Rack travel in mm : | 16.50 |
| Tolerance mm : | + 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--------------------|-------|
| Rated speed rpm : | 1300 |
| Aneroid pressure | |
| hPa : | 700 |
| Del. quantity | |
| cm3/1000 strokes : | 87.0 |
| cm3/1000 strokes : | + 1.0 |
| Check tolerance | |
| cm3/1000S. : | + 3.0 |
| Spreed | |
| cm3/1000 strokes : | 3.5 |
| Check tolerance | |
| cm3/1000S. : | 8.0 |

CONTROL LEVER

| | |
|--------------------|-------|
| control lever | |
| position degree : | 63.0 |
| tolerance degree : | + 4.0 |

RATED SPEED

| | |
|-------------------|--------|
| rack travel mm : | 11.10 |
| Rated speed rpm : | 1345 |
| Tolerance 1/min : | + 5 |
| rack travel mm : | 4.00 |
| Rated speed rpm : | 1465 |
| Tolerance 1/min : | + 15 |
| rack travel mm : | 0.50 |
| Tolerance mm : | + 0.50 |
| Rated speed rpm : | 1600 |

LOW IDLE

| | |
|--------------------|-------|
| control lever | |
| position degree : | 16.0 |
| tolerance degree : | + 4.0 |

Testing:

| | |
|-------------------|--------|
| Rated speed rpm : | 375 |
| rack travel mm : | 6.50 |
| Tolerance mm : | + 0.10 |
| rack travel mm : | 2.00 |
| Rated speed rpm : | 680 |
| Tolerance 1/min : | + 30 |
| Rated speed rpm : | 100 |
| CRT mm min. : | > 9.50 |
| Rated speed rpm : | 495 |

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 850
rack travel mm : 12.55
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.55
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 420
rack travel mm : 0.40
Tolerance mm : \pm 0.10

Pressure hPa : 510
rack travel mm : 1.15
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 850

Del. quantity
cm³/1000 strokes : 86.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 62.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

BREAKAWAY

Rack travel in mm : 11.10
Rated speed rpm : 1345
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 122.0
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000S. : \pm 11.0

LOW IDLE

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 9.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.09.96
Test oil :

Combination No. : 9 400 085 324

Injection pump
Pump designation : PES6A95D410RS2801
EP type number : 9 400 084 023

Governor
Governor design. : RQV350...1300AB1255L
Governor no. : 9 420 080 294

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 7.8 L - TC
Power KW : 158.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 107.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

| | |
|---------------------|--------|
| Spreed | |
| cm3/1000 strokes : | 3.5 |
| Check tolerance | |
| cm3/1000S. : | 8.0 |
| Rated speed rpm : | 350 |
| Rack travel in mm : | 6.60 |
| Tolerance mm : | + 0.10 |
| Del. quantity | |
| cm3/1000 strokes : | 14.0 |
| cm3/1000 strokes : | + 2.0 |
| Check tolerance | |
| cm3/1000S. : | + 4.5 |
| Spreed | |
| cm3/1000 strokes : | 5.5 |
| Check tolerance | |
| cm3/1000S. : | 9.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-------------------|--------|
| Rated speed rpm : | 1450 |
| guide sleeve | |
| travel mm : | 8.55 |
| Tolerance mm : | + 0.05 |
| Rated speed rpm : | 700 |
| guide sleeve | |
| travel mm : | 3.70 |
| Tolerance mm : | + 0.20 |
| Rated speed rpm : | 350 |
| guide sleeve | |
| travel mm : | 1.45 |
| Tolerance mm : | + 0.25 |
| Rated speed rpm : | 500 |
| guide sleeve | |
| travel mm : | 2.90 |
| Tolerance mm : | + 0.20 |
| Rated speed rpm : | 1000 |
| guide sleeve | |
| travel mm : | 5.10 |
| Tolerance mm : | + 0.20 |

GUIDE SLEEVE POSITION

| | |
|---------------------|-------|
| Rated speed rpm : | 1390 |
| Rack travel in mm : | 16.50 |

K08

| | |
|----------------|--------|
| Tolerance mm : | + 1.30 |
|----------------|--------|

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--------------------|-------|
| Rated speed rpm : | 1300 |
| Aneroid pressure | |
| hPa : | 1000 |
| Del. quantity | |
| cm3/1000 strokes : | 107.0 |
| cm3/1000 strokes : | + 1.0 |
| Check tolerance | |
| cm3/1000S. : | + 3.0 |
| Spreed | |
| cm3/1000 strokes : | 3.5 |
| Check tolerance | |
| cm3/1000S. : | 8.0 |

CONTROL LEVER

| | |
|--------------------|-------|
| control lever | |
| position degree : | 60.0 |
| tolerance degree : | + 4.0 |
| control lever | |
| position degree : | 115.0 |
| tolerance degree : | + 4.0 |

RATED SPEED

| | |
|-------------------|--------|
| rack travel mm : | 12.40 |
| Rated speed rpm : | 1345 |
| Tolerance 1/min : | + 5 |
| rack travel mm : | 4.00 |
| Rated speed rpm : | 1500 |
| Tolerance 1/min : | + 15 |
| rack travel mm : | 0.50 |
| Tolerance mm : | + 0.50 |
| Rated speed rpm : | 1600 |

LOW IDLE

| | |
|--------------------|-------|
| control lever | |
| position degree : | 70.0 |
| tolerance degree : | + 4.0 |
| control lever | |
| position degree : | 15.0 |
| tolerance degree : | + 4.0 |

Testing:

| | |
|-------------------|-----|
| Rated speed rpm : | 350 |
|-------------------|-----|

rack travel mm : 6.60
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 9.00

Rated speed rpm : 385

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 13.45
Tolerance mm : \pm 0.05

Rated speed rpm : 850
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 13.65
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.85
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 610
rack travel mm : 1.15
Tolerance mm : \pm 0.05

Pressure hPa : 410
rack travel mm : 0.40
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80

Check
speed 1/min : $<$ 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 108.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 107.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

BREAKAWAY

Rack travel in mm : 12.40
Rated speed rpm : 1345
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

Del. quantity
cm³/1000 strokes : 165.0
cm³/1000 strokes : ± 8.0
Check tolerance
cm³/1000S. : ± 11.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 14.0
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.09.96
Test oil : ISO 4113
Combination No. : 9 400 087 460
Injection pump
Pump designation : PES6P120A720LS7114
: -13
EP type number : 0 412 726 867

Governor
Governor design. : RQ300/1050PA911-3
Governor no. : 9 420 080 314

Cust. part No. : 0140748502

Customer-spec. information
Customer : MBB
Motor : OM447 LA
Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.50
Tolerance mm : ± 0.10

Del. quantity
cm3/1000 strokes : 226.0

cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 4.0

Speed
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.5
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 2.75
Tolerance mm : \pm 0.15

Rated speed rpm : 1125
guide sleeve
travel mm : 7.30
Tolerance mm : \pm 0.20

Rated speed rpm : 600
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.50
Tolerance mm : \pm 0.10

Rated speed rpm : 1175
guide sleeve
travel mm : 9.45
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 226.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 34.0
tolerance degree : \pm 4.0

control lever
position degree : 99.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.40
Rated speed rpm : 1103
Tolerance 1/min : \pm 8

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : \pm 15

rack travel mm : 0.75
Tolerance mm : \pm 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

control lever
position degree : 13.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 380
Tolerance 1/min : \pm 20

Rated speed rpm : 100
CRT mm min. : > 9.00

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 14.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 240
rack travel mm : -2.30
Tolerance mm : \pm 0.10

Pressure hPa : 560
rack travel mm : -0.80
Tolerance mm : \pm 0.10

Pressure hPa : 920
rack travel mm : 0.25
Tolerance mm : \pm 0.05

Pressure hPa : 980
rack travel mm : 0.45
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500

K13

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 219.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 239.0
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 131.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.40
Rated speed rpm : 1103
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 13.5
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.09.96
Test oil : ISO 4113

Combination No. : 9 400 030 739

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1250A0C852R
Governor no. : 9 420 034 718

Cust. part No. : 3929403

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 114.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 102.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.10
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 21.5
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 102.0
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 115.0

RATED SPEED

rack travel mm : 10.70
Rated speed rpm : 1320
Tolerance 1/min : ± 5

rack travel mm : 7.50
Rated speed rpm : 1365
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1450

rack travel mm : 7.50
Rated speed rpm : 1365

LOW IDLE

control lever
position degree : 87.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 4.60

Testing:

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : ± 0.10

rack travel mm : > 2.00
Rated speed rpm : 580
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.75
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 11.90
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 900

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 800
rack travel mm : 11.00
Tolerance mm : \pm 0.20

Rated speed rpm : 800

Pressure hPa : 620
rack travel mm : 11.80
Tolerance mm : \pm 0.20

Pressure hPa : 565
rack travel mm : 11.30
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 108.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 97.5
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 10.70

K17

Rated speed rpm : 1320
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 21.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.09.96
Test oil : ISO 4113

Combination No. : 9 400 030 746

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1250AOC862R
Governor no. : 9 420 034 720

Cust. part No. : 3930150

Customer-spec. information
Customer : CDC
Motor : 4BT3.9
Power KW : 67.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 95.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.50

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 20.5

cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : \pm 0.20

governor spring
pre-tension

click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 95.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.20

Rated speed rpm : 1315

Tolerance 1/min : \pm 10

rack travel mm : 4.70

Rated speed rpm : 1380

Tolerance 1/min : \pm 5

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1450

rack travel mm : 4.70

Rated speed rpm : 1380

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 475

rack travel mm : 5.00

Testing:

Rated speed rpm : 475

rack travel mm : 5.50

Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1250

rack travel mm : 11.25

Tolerance mm : \pm 0.05

Rated speed rpm : 750

rack travel mm : 11.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 10.80
Tolerance mm : \pm 0.20

Rated speed rpm : 600

Pressure hPa : 590
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 490
rack travel mm : 11.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 100.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 85.5
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 1315
Tolerance 1/min : \pm 10

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 162.5
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 20.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.09.96
Test oil : ISO 4113

Combination No. : 0 401 848 829

Injection pump
Pump designation : PE8P110A320LS3865
EP type number : 0 411 818 728

Governor
Governor design. : RQ250/1150PA1250
Governor no. : 0 421 801 796

Cust. part No. :

Customer-spec. information
Customer : DHI
Motor : V2-8NA

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

K21

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.80
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 126.0

cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 4.0

| | |
|--------------------|------|
| Spreed | |
| cm3/1000 strokes : | 6.0 |
| Check tolerance | |
| cm3/1000S. : | 10.0 |
| Rated speed rpm : | 250 |

| | |
|---------------------|--------|
| Rack travel in mm : | 8.10 |
| Tolerance mm : | + 0.10 |
| Del. quantity | |
| cm3/1000 strokes : | 25.0 |
| cm3/1000 strokes : | + 3.0 |
| Check tolerance | |
| cm3/1000S. : | + 6.0 |
| Spreed | |
| cm3/1000 strokes : | 6.0 |
| Check tolerance | |
| cm3/1000S. : | 10.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-------------------|--------|
| Rated speed rpm : | 250 |
| guide sleeve | |
| travel mm : | 1.59 |
| Tolerance mm : | + 0.20 |

| | |
|-------------------|--------|
| Rated speed rpm : | 1209 |
| guide sleeve | |
| travel mm : | 7.49 |
| Tolerance mm : | + 0.15 |

| | |
|-------------------|--------|
| Rated speed rpm : | 1150 |
| guide sleeve | |
| travel mm : | 7.00 |
| Tolerance mm : | + 0.10 |

| | |
|-------------------|--------|
| Rated speed rpm : | 411 |
| guide sleeve | |
| travel mm : | 5.37 |
| Tolerance mm : | + 0.10 |

| | |
|-------------------|--------|
| Rated speed rpm : | 510 |
| guide sleeve | |
| travel mm : | 7.00 |
| Tolerance mm : | + 0.10 |

| | |
|-------------------|--------|
| Rated speed rpm : | 1340 |
| guide sleeve | |
| travel mm : | 11.50 |
| Tolerance mm : | + 0.50 |

GUIDE SLEEVE POSITION

| | |
|---------------------|--------|
| Rated speed rpm : | 700 |
| Rack travel in mm : | 15.50 |
| Tolerance mm : | + 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--------------------|-------|
| Rated speed rpm : | 1150 |
| Aneroid pressure | |
| hPa : | - |
| Del. quantity | |
| cm3/1000 strokes : | 126.0 |
| cm3/1000 strokes : | + 1.0 |
| Check tolerance | |
| cm3/1000S. : | + 4.0 |
| Spreed | |
| cm3/1000 strokes : | 6.0 |
| Check tolerance | |
| cm3/1000S. : | 10.0 |

CONTROL LEVER

| | |
|--------------------|-------|
| control lever | |
| position degree : | 36.0 |
| tolerance degree : | + 4.0 |

| | |
|--------------------|-------|
| control lever | |
| position degree : | 98.0 |
| tolerance degree : | + 4.0 |

RATED SPEED

| | |
|-------------------|-------|
| rack travel mm : | 10.80 |
| Rated speed rpm : | 1203 |
| Tolerance 1/min : | + 5 |

| | |
|-------------------|------|
| rack travel mm : | 4.00 |
| Rated speed rpm : | 1260 |
| Tolerance 1/min : | + 15 |

| | |
|-------------------|--------|
| rack travel mm : | 0.50 |
| Tolerance mm : | + 0.50 |
| Rated speed rpm : | 1350 |

LOW IDLE

| | |
|--------------------|-------|
| control lever | |
| position degree : | 77.0 |
| tolerance degree : | + 4.0 |

control lever
position degree : 14.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 8.10
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : \pm 20

Rated speed rpm : 150

CRT mm min. : $>$ 9.90

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 11.80
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 170

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 127.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

BREAKAWAY

Rack travel in mm : 10.80
Rated speed rpm : 1203

Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 135.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 25.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.09.96
Test oil : ISO 4113

Combination No. : 0 401 848 830

Injection pump
Pump designation : PE8P110A320LS3865
EP type number : 0 411 818 728

Governor
Governor design. : RQV250...1000PA1286
Governor no. : 0 421 814 175

Cust. part No. :

Customer-spec. information
Customer : DHI
Motor : V2-8TC

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

| | |
|---------------------|--------|
| <hr/> | |
| Del. quantity | |
| cm3/1000 strokes : | 142.0 |
| <hr/> | |
| cm3/1000 strokes : | + 1.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. : | + 4.0 |
| <hr/> | |
| Spreed | |
| cm3/1000 strokes : | 6.0 |
| <hr/> | |
| Check tolerance | |
| cm3/1000S. : | 10.0 |
| <hr/> | |
| Rated speed rpm : | 250 |
| <hr/> | |
| Rack travel in mm : | 8.20 |
| Tolerance mm : | + 0.10 |
| Del. quantity | |
| cm3/1000 strokes : | 25.0 |
| cm3/1000 strokes : | + 3.0 |
| Check tolerance | |
| cm3/1000S. : | + 6.0 |
| Spreed | |
| cm3/1000 strokes : | 6.0 |
| Check tolerance | |
| cm3/1000S. : | 10.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-------------------|--------|
| Rated speed rpm : | 250 |
| guide sleeve | |
| travel mm : | 1.31 |
| Tolerance mm : | + 0.20 |
| <hr/> | |
| Rated speed rpm : | 1058 |
| guide sleeve | |
| travel mm : | 8.56 |
| Tolerance mm : | + 0.15 |
| <hr/> | |
| Rated speed rpm : | 666 |
| guide sleeve | |
| travel mm : | 5.29 |
| Tolerance mm : | + 0.25 |
| <hr/> | |
| Rated speed rpm : | 380 |
| guide sleeve | |
| travel mm : | 3.20 |
| Tolerance mm : | + 0.25 |
| <hr/> | |
| Rated speed rpm : | 1300 |
| guide sleeve | |
| travel mm : | 11.50 |

K25

| | |
|----------------|--------|
| Tolerance mm : | + 0.50 |
|----------------|--------|

GUIDE SLEEVE POSITION

| | |
|---------------------|--------|
| Rated speed rpm : | 1120 |
| Rack travel in mm : | 12.00 |
| Tolerance mm : | + 2.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--------------------|-------|
| Rated speed rpm : | 1000 |
| Aneroid pressure | |
| hPa : | - |
| Del. quantity | |
| cm3/1000 strokes : | 142.0 |
| cm3/1000 strokes : | + 1.0 |
| Check tolerance | |
| cm3/1000S. : | + 4.0 |
| Spreed | |
| cm3/1000 strokes : | 6.0 |
| Check tolerance | |
| cm3/1000S. : | 10.0 |

CONTROL LEVER

| | |
|--------------------|-------|
| control lever | |
| position degree : | 65.0 |
| tolerance degree : | + 4.0 |

| | |
|--------------------|-------|
| control lever | |
| position degree : | 120.0 |
| tolerance degree : | + 4.0 |

RATED SPEED

| | |
|-------------------|--------|
| rack travel mm : | 12.00 |
| Rated speed rpm : | 1045 |
| Tolerance 1/min : | + 5 |
| <hr/> | |
| rack travel mm : | 4.00 |
| Rated speed rpm : | 1155 |
| Tolerance 1/min : | + 15 |
| <hr/> | |
| rack travel mm : | 0.50 |
| Tolerance mm : | + 0.50 |
| Rated speed rpm : | 1300 |

LOW IDLE

| | |
|--------------------|-------|
| control lever | |
| position degree : | 71.0 |
| tolerance degree : | + 4.0 |

control lever
position degree : 16.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 8.20
Tolerance mm : \pm 0.10

Rated speed rpm : 150

CRT mm min. : $>$ 9.60

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 13.00
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 190

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 210

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1045
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 125.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 25.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.09.96
Test oil : ISO 4113

Combination No. : 0 402 646 667

Injection pump
Pump designation : PE6P120A320RS7412
EP type number : 0 412 626 953

Governor
Governor design. : RQV275...1000PA1278K
Governor no. : 0 421 815 509

Cust. part No. : 1310221/1

Customer-spec. information

Customer : DAF
Motor : XF 315 M
Power KW : 315.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.10
Tolerance mm : ± 0.05

| | |
|-------------------------------|----------|
| Del. quantity | |
| cm ³ /1000 strokes | : 327.0 |
| cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 4.0 |
| Speed | |
| cm ³ /1000 strokes | : 5.0 |
| Check tolerance | |
| cm ³ /1000S. | : 9.0 |
| Rated speed rpm | : 275 |
| Rack travel in mm | : 4.00 |
| Tolerance mm | : ± 0.10 |
| Del. quantity | |
| cm ³ /1000 strokes | : 17.0 |
| cm ³ /1000 strokes | : ± 3.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 6.0 |
| Speed | |
| cm ³ /1000 strokes | : 8.0 |
| Check tolerance | |
| cm ³ /1000S. | : 12.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-----------------|----------|
| Rated speed rpm | : 275 |
| guide sleeve | |
| travel mm | : 2.04 |
| Tolerance mm | : ± 0.20 |
| Rated speed rpm | : 1077 |
| guide sleeve | |
| travel mm | : 10.24 |
| Tolerance mm | : ± 0.15 |
| Rated speed rpm | : 704 |
| guide sleeve | |
| travel mm | : 6.53 |
| Tolerance mm | : ± 0.25 |
| Rated speed rpm | : 400 |
| guide sleeve | |
| travel mm | : 3.92 |
| Tolerance mm | : ± 0.25 |
| Rated speed rpm | : 1310 |
| guide sleeve | |
| travel mm | : 13.50 |

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| Rated speed rpm | : 1158 |
| Rack travel in mm | : 12.00 |
| Tolerance mm | : ± 2.70 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-------------------------------|---------|
| Rated speed rpm | : 980 |
| Aneroid pressure | |
| hPa | : 1500 |
| Del. quantity | |
| cm ³ /1000 strokes | : 327.0 |
| cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 4.0 |
| Speed | |
| cm ³ /1000 strokes | : 5.0 |
| Check tolerance | |
| cm ³ /1000S. | : 9.0 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 119.0 |
| tolerance degree | : ± 4.0 |

RATED SPEED

| | |
|-----------------|----------|
| rack travel mm | : 12.10 |
| Rated speed rpm | : 1050 |
| Tolerance 1/min | : ± 5 |
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1145 |
| Tolerance 1/min | : ± 15 |
| rack travel mm | : 0.50 |
| Tolerance mm | : ± 0.50 |
| Rated speed rpm | : 1275 |

LOW IDLE

| | |
|------------------|---------|
| control lever | |
| position degree | : 72.0 |
| tolerance degree | : ± 4.0 |

Testing:

| | |
|-----------------|-------|
| Rated speed rpm | : 275 |
|-----------------|-------|

rack travel mm : 4.00
 Tolerance mm : +- 0.10
 Rated speed rpm : 175
 CRT mm min. : > 7.00
 Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 980
 rack travel mm : 13.10
 Tolerance mm : +- 0.05
 Rated speed rpm : 750
 rack travel mm : 12.85
 Tolerance mm : +- 0.05
 Rated speed rpm : 700
 rack travel mm : 12.50
 Tolerance mm : +- 0.10
 Rated speed rpm : 600
 rack travel mm : 11.95
 Tolerance mm : +- 0.10
 Rated speed rpm : 500
 rack travel mm : 11.50
 Tolerance mm : +- 0.10
 Rated speed rpm : 1000
 rack travel mm : 13.10
 Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
 Pressure hPa : 1500
 rack travel mm : 13.10
 Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 980
 rack travel mm : 7.75
 Tolerance mm : +- 0.20
 Rated speed rpm : 980
 Pressure hPa : 650
 rack travel mm : 11.50
 Tolerance mm : +- 0.05

L01

Pressure hPa : 250
 rack travel mm : 8.75
 Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1500
 Rated speed rpm : 750
 Del. quantity
 cm3/1000 strokes : 344.0
 cm3/1000 strokes : +- 2.0
 Check tolerance
 cm3/1000S. : +- 5.0
 Spreed
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 192.0
 cm3/1000 strokes : +- 1.0
 Check tolerance
 cm3/1000S. : +- 4.0
 Spreed
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.10
 Rated speed rpm : 1050
 Tolerance 1/min : +- 5

LOW IDLE

Rated speed rpm : 275
 Del. quantity
 cm3/1000 strokes : 17.0
 cm3/1000 strokes : +- 3.0
 Check tolerance
 cm3/1000S. : +- 6.0
 Spreed
 cm3/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.06.96
Test oil : ISO 4113

Combination No. : 0 402 648 904

Injection pump
Pump designation : PE8P120A320LS7801-1
EP type number : 0 412 628 818

Governor
Governor design. : RQV350...1050PA866
: -9
Governor no. : 0 421 813 906

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 A
Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

CRT ZERO POSITION

Rack travel in mm : 13.90
Tolerance mm : ± 0.10

BASIC SETTING

Rated speed rpm : 500

Rack travel in mm : 13.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 202.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.55
Tolerance mm : \pm 0.25

Rated speed rpm : 1107
guide sleeve
travel mm : 8.05
Tolerance mm : \pm 0.25

Rated speed rpm : 570
guide sleeve
travel mm : 3.55
Tolerance mm : \pm 0.25

L04

Rated speed rpm : 900
guide sleeve
travel mm : 5.65
Tolerance mm : \pm 0.25

Rated speed rpm : 1204
guide sleeve
travel mm : 10.05
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1130

Rack travel in mm : 17.25
Tolerance mm : \pm 0.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 500
Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 202.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.70
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : \pm 15

rack travel mm : 0.75
Tolerance mm : \pm 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 6.90

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 500
rack travel mm : 13.90
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 12.70
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 14.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 400
rack travel mm : -1.50
Tolerance mm : \pm 0.05

Pressure hPa : 475
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Pressure hPa : 925
rack travel mm : 0.15
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 182.5
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : 1100
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 215.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 144.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

BREAKAWAY

Rack travel in mm : 11.70
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 230.0
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.09.96
Test oil : ISO 4113

Combination No. : 0 402 676 835

Injection pump
Pump designation : PE6P120A320RS7428
EP type number : 0 412 626 959

Governor
Governor design. : RSV300...850P1A594
: -2
Governor no. : 0 421 833 479

Cust. part No. : 11031996 P01 v.08.96

Customer-spec. information

Customer : VCE
Motor : TD 122 KKE
Power kW : 237.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 9.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 253.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 330

Rack travel in mm : 3.90
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 45.0

cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 253.0
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 50.0
tolerance degree : ± 4.0

control lever
position degree : 100.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 8.40
Rated speed rpm : 870
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 905
Tolerance 1/min : ± 15

rack travel mm : 0.80
Tolerance mm : ± 0.50
Rated speed rpm : 1070

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

control lever
position degree : 25.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 330
rack travel mm : 3.40

Testing:

Rated speed rpm : 330
rack travel mm : 3.90
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 420
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 9.40
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 9.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 9.40
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.40
Tolerance mm : \pm 0.10

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 1.70
Tolerance mm : \pm 0.20

Pressure hPa : 260
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 247.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure

hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 192.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 8.40
Rated speed rpm : 870
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 330
Del. quantity
cm³/1000 strokes : 45.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.09.96
Test oil : ISO 4113

Combination No. : 0 402 736 896

Injection pump
Pump designation : PES6P120A720/3LS7251
: -1
EP type number : 0 412 726 926

Governor
Governor design. : RQV300...1000PA962
: -14K
Governor no. : 0 421 815 499

Cust. part No. : 51.11103-7497

Customer-spec. information
Customer : MAN
Motor : D2866 LF06
Power KW : 309.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 200
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

L10

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 107.0

cm³/1000 strokes : \pm 8.0

Check tolerance
cm³/1000S. : \pm 14.0

Spread

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 900

Rack travel in mm : 13.10
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 272.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 300

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 32.0

cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

L11

Rated speed rpm : 300
guide sleeve
travel mm : 2.65
Tolerance mm : \pm 0.20

Rated speed rpm : 1056
guide sleeve
travel mm : 8.01
Tolerance mm : \pm 0.15

Rated speed rpm : 622
guide sleeve
travel mm : 4.85
Tolerance mm : \pm 0.25

Rated speed rpm : 350
guide sleeve
travel mm : 3.82
Tolerance mm : \pm 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1290

Rack travel in mm : 11.70
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 272.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

CONTROL LEVER

control lever
position degree : 285.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.70
Rated speed rpm : 1045
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 245.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 7.30

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 12.70
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200
rack travel mm : 13.10
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 900
rack travel mm : 9.00
Tolerance mm : \pm 0.10

Rated speed rpm : 900

Pressure hPa : 220
rack travel mm : 9.45
Tolerance mm : \pm 0.05

Pressure hPa : 720
rack travel mm : 12.00
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 252.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 262.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 169.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.70
Rated speed rpm : 1045
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 32.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.09.96
Test oil : ISO 4113

Combination No. : 0 402 846 053

Injection pump
Pump designation : PE6P120A320RS8015
EP type number : 0 412 826 016

Governor
Governor design. : RQV300...1050PA1027K
Governor no. : 0 421 815 311

Cust. part No. : 11031702
: -P03 V.09/95

Customer-spec. information
Customer : VCE
Motor : TD122KHE

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 10.00
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 231.0

cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.20
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 23.0
cm3/1000 strokes : +- 3.0

Check tolerance
cm3/1000S. : +- 6.0

Spreed
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 2.09
Tolerance mm : +- 0.25

Rated speed rpm : 1096
guide sleeve
travel mm : 9.66
Tolerance mm : +- 0.25

Rated speed rpm : 771
guide sleeve
travel mm : 6.39
Tolerance mm : +- 0.25

Rated speed rpm : 316
guide sleeve
travel mm : 2.30
Tolerance mm : +- 0.25

Rated speed rpm : 366
guide sleeve
travel mm : 2.96
Tolerance mm : +- 0.25

Rated speed rpm : 470
guide sleeve
travel mm : 3.79
Tolerance mm : +- 0.25

Rated speed rpm : 1370
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1230

Rack travel in mm : 8.50
Tolerance mm : +- 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
Aneroid pressure
hPa : 1500

Del. quantity
cm3/1000 strokes : 231.0
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 63.0
tolerance degree : +- 4.0

control lever
position degree : 115.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.30
Rated speed rpm : 1085
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1270

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

control lever
position degree : 19.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 5.80

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 10.00
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 10.30
Tolerance mm : \pm 0.10

Rated speed rpm : 550
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Rated speed rpm : 690
rack travel mm : 10.30
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1500
rack travel mm : 10.90
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -

Rated speed rpm : 550
rack travel mm : 8.50
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 640
rack travel mm : 2.00
Tolerance mm : \pm 0.10

Pressure hPa : 240
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 219.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000s. : 14.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 286.5
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 208.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

BREAKAWAY

Rack travel in mm : 9.30
Rated speed rpm : 1085
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.09.96
Test oil : ISO 4113

Combination No. : 0 402 846 057

Injection pump
Pump designation : PE6P120A320RS8024
EP type number : 0 412 826 025

Governor
Governor design. : RQV250...1100PA1072
: -1K
Governor no. : 0 421 815 988

Cust. part No. : 477814P05 prel.08.96

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD74EB
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 7.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 204.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.60
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 23.0
cm3/1000 strokes : +- 2.5

Check tolerance
cm3/1000S. : +- 5.0

Spreed
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 2.24
Tolerance mm : +- 0.25

Rated speed rpm : 1176
guide sleeve
travel mm : 10.15
Tolerance mm : +- 0.25

Rated speed rpm : 733
guide sleeve
travel mm : 5.39
Tolerance mm : +- 0.25

Rated speed rpm : 307
guide sleeve
travel mm : 2.29
Tolerance mm : +- 0.25

Rated speed rpm : 357
guide sleeve
travel mm : 2.97
Tolerance mm : +- 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 3.22
Tolerance mm : +- 0.25

Rated speed rpm : 1390
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1290

Rack travel in mm : 7.50
Tolerance mm : +- 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500

Del. quantity
cm3/1000 strokes : 204.0
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 66.0
tolerance degree : +- 4.0

control lever
position degree : 119.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.05
Rated speed rpm : 1165
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

control lever
position degree : 18.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.60
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 6.50

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 12.20
Tolerance mm : \pm 0.10

Rated speed rpm : 300
rack travel mm : 10.70
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500
rack travel mm : 13.05
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 7.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1100

Pressure hPa : 1010
rack travel mm : 5.40
Tolerance mm : \pm 0.20

Pressure hPa : 120
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 232.0
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 105.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.05
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.09.96
Test oil : ISO 4113

Combination No. : 0 402 846 061

Injection pump
Pump designation : PE6P120A320RS8024-1
EP type number : 0 412 826 029

Governor
Governor design. : RQV250...1100PA1072
: -3K
Governor no. : 0 421 815 979

Cust. part No. : 477950-P05 v. 11.95

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD74 EU
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 7.20
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 175.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.40
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : + 5.0

Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.33
Tolerance mm : + 0.25

Rated speed rpm : 1176
guide sleeve
travel mm : 10.15
Tolerance mm : + 0.25

Rated speed rpm : 733
guide sleeve
travel mm : 5.39
Tolerance mm : + 0.25

Rated speed rpm : 307
guide sleeve
travel mm : 2.29
Tolerance mm : + 0.25

Rated speed rpm : 357
guide sleeve
travel mm : 2.97
Tolerance mm : + 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 3.22
Tolerance mm : + 0.25

Rated speed rpm : 1390
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1290

Rack travel in mm : 7.50
Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 175.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 72.0
tolerance degree : + 4.0

control lever
position degree : 118.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.40
Rated speed rpm : 1165
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

control lever
position degree : 19.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.40
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 6.50

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.40
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 9.10
Tolerance mm : \pm 0.10

Rated speed rpm : 300
rack travel mm : 8.30
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500
rack travel mm : 11.40
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 7.20
Tolerance mm : \pm 0.10

Rated speed rpm : 1100

Pressure hPa : 580
rack travel mm : 3.50
Tolerance mm : \pm 0.20

Pressure hPa : 120
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 159.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 114.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 10.40
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 16.09.96
Test oil : ISO 4113

Combination No. : 0 402 846 079

Injection pump
Pump designation : PE6P120A320RS8044
EP type number : 0 412 826 036

Governor
Governor design. : RQV300...1050PA1141
Governor no. : 0 421 814 091

Cust. part No. : 11031994
: -P01 V.08.96

Customer-spec. information
Customer : VCE
Motor : TD122KFE
Power KW : 297.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.30
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 298.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 325

Rack travel in mm : 3.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
guide sleeve
travel mm : 2.03
Tolerance mm : \pm 0.20

Rated speed rpm : 1132
guide sleeve
travel mm : 8.52
Tolerance mm : \pm 0.15

Rated speed rpm : 1039
guide sleeve
travel mm : 7.00
Tolerance mm : \pm 0.25

Rated speed rpm : 520
guide sleeve
travel mm : 4.67
Tolerance mm : \pm 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1180

Rack travel in mm : 11.10
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 298.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : \pm 4.0

control lever
position degree : 128.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.30
Rated speed rpm : 1120
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1280

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

control lever
position degree : 15.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 3.80
Tolerance mm : \pm 0.10

Rated speed rpm : 225

CRT mm min. : $>$ 6.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 11.30
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 10.45
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.25
Tolerance mm : \pm 0.25

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.80
Tolerance mm : \pm 0.10

Rated speed rpm : 500

Pressure hPa : 850
rack travel mm : 3.00
Tolerance mm : \pm 0.20

Pressure hPa : 300
rack travel mm : 0.25
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $>$ 230

Check
speed 1/min : $>$ 80
Check
speed 1/min : $>$ 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 269.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 188.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 10.30
Rated speed rpm : 1120
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.09.96
Test oil : ISO 4113

Combination No. : 0 402 846 080

Injection pump
Pump designation : PE6P120A320RS8044
EP type number : 0 412 826 036

Governor
Governor design. : RQV300...1050PA1027K
Governor no. : 0 421 815 311

Cust. part No. : 11031995
: -P01 V.08/96

Customer-spec. information
Customer : VCE
Motor : TD122KHE
Power KW : 209.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 10.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 231.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 2.01
Tolerance mm : \pm 0.20

Rated speed rpm : 1105
guide sleeve
travel mm : 9.77
Tolerance mm : \pm 0.15

Rated speed rpm : 775
guide sleeve
travel mm : 6.42
Tolerance mm : \pm 0.25

Rated speed rpm : 470
guide sleeve
travel mm : 3.79
Tolerance mm : \pm 0.25

Rated speed rpm : 1370
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1234

Rack travel in mm : 9.40
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 231.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : \pm 4.0

control lever
position degree : 116.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.30
Rated speed rpm : 1085
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1155
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1270

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

control lever
position degree : 23.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 8.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 10.00
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 10.30
Tolerance mm : \pm 0.10

Rated speed rpm : 550
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Rated speed rpm : 690
rack travel mm : 10.30
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1500
rack travel mm : 10.90
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 8.50
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 640
rack travel mm : 2.00
Tolerance mm : \pm 0.10

Pressure hPa : 240
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 219.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 285.0
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 208.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 9.30
Rated speed rpm : 1085
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
cm³/1000 strokes : \pm 15.0

Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.09.96
Test oil : ISO 4113

Combination No. : 0 401 876 814

Injection pump
Pump designation : PE6P110A320RS3364
EP type number : 0 411 816 798

Governor
Governor design. : RSV300...900P1A625
Governor no. : 0 421 833 554

Cust. part No. : 11030180
: -P02 v.01/96

Customer-spec. information
Customer : VCE
Motor : TD 63 KFE
Power KW : 120.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

MO6

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.20
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 151.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 300

Rack travel in mm : 6.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 151.0
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0
Speed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 51.0
tolerance degree : \pm 4.0

control lever
position degree : 101.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.20
Rated speed rpm : 930
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 990
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1150

rack travel mm : 4.00
Rated speed rpm : 1015

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

control lever
position degree : 24.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
rack travel mm : 5.90

Testing:

Rated speed rpm : 300
rack travel mm : 6.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 485
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.20
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1500
rack travel mm : 13.20
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 10.20
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 580
rack travel mm : 2.70
Tolerance mm : \pm 0.20

Pressure hPa : 90
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 87.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.20
Rated speed rpm : 930

M08

Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 103.0
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 26.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.09.96
Test oil : ISO 4113

Combination No. : 0 401 876 815

Injection pump
Pump designation : PE6P110A320RS3374
EP type number : 0 411 816 800

Governor
Governor design. : RSV300...900P1A625
Governor no. : 0 421 833 554

Cust. part No. : 11032713
: -P01 v.08/96

Customer-spec. information
Customer : VCE
Motor : TD 63 KFE
Power KW : 122.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.20
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 151.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 300

Rack travel in mm : 6.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 151.0
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0
Speed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 51.0
tolerance degree : \pm 4.0

control lever
position degree : 101.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.20
Rated speed rpm : 930
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 990
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1150

rack travel mm : 4.00
Rated speed rpm : 1015

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

control lever
position degree : 24.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
rack travel mm : 5.90

Testing:

Rated speed rpm : 300
rack travel mm : 6.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 485
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.20
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1500
rack travel mm : 13.20
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 10.20
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 580
rack travel mm : 2.70
Tolerance mm : \pm 0.20

Pressure hPa : 90
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 87.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.20
Rated speed rpm : 930

Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 103.0
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 26.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 25.09.96

Test oil : ISO 4113

Combination No. : 0 402 074 700

Injection pump

Pump designation : PES4P1108720RS3383

EP type number : 0 412 014 701

Governor

Governer design. : RSV300...1100P1A667

Governer no. : 0 421 833 582

Cust. part No. : 9279831

Customer-spec. information

Customer : LIEBHERR

Motor : D 924 TI-E A2

Power KW : 147.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde assembly

: 1 688 901 101

Opening pressure bar

: 207.0

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.20

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 189.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 3.5

Speed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.00

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 20.0

cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.5

Speed
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : 1420

Del. quantity

cm³/1000 strokes : 189.0

cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.5

Speed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.00

Rated speed rpm : 1040

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1090

Tolerance 1/min : + 15

Tolerance mm : + 0.55

rack travel mm : 4.00

Rated speed rpm : 1095

LOW IDLE

control lever

position degree : 78.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 3.80

Testing:

Rated speed rpm : 400

rack travel mm : 4.00

Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 13.00

Tolerance mm : + 0.05

Rated speed rpm : 500

rack travel mm : 13.00

Tolerance mm : + 0.10

Rated speed rpm : 700

rack travel mm : 13.00

Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550

Pressure hPa : 1420

rack travel mm : 1.80
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 910
rack travel mm : 1.50
Tolerance mm : \pm 0.05

Pressure hPa : 820
rack travel mm : 0.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1420
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 213.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1420
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 203.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 177.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1040
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.09.96
Test oil : ISO 4113

Combination No. : 0 402 074 700B

Injection pump
Pump designation : PES4P110B720RS3383
EP type number : 0 412 014 701

Governor
Governor design. : RSV300...1100P1A667
Governor no. : 0 421 833 582

Cust. part No. : 9279831

Customer-spec. information

Customer : LIEBHERR
Motor : D 924 TI-E A2
Power KW : 147.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 189.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : \pm 3.5

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 20.0

cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.5

Spreed
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1420

Del. quantity
cm³/1000 strokes : 189.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.5

Spreed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

RATED SPEED

rack travel mm : 12.00
Rated speed rpm : 1040

Tolerance 1/min : \pm 5

Tolerance mm : \pm 0.55

rack travel mm : 4.00
Rated speed rpm : 1095

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.80

Testing:

Rated speed rpm : 400
rack travel mm : 4.00

Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 13.00
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 13.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1420
rack travel mm : 1.80
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 910
rack travel mm : 1.20
Tolerance mm : \pm 0.05

Pressure hPa : 820
rack travel mm : 0.40

Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1420
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 213.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1420
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 203.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 177.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1040
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Spreed
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.09.96

Test oil : ISO 4113

Combination No. : 0 402 076 808

Injection pump

Pump designation : PES6P120A72ORS3371

EP type number : 0 412 026 791

Governor

Governer design. : RSV450...1050P5A649

Governer no. : 0 421 833 566

Cust. part No. :

Customer-spec. information

Customer : IVECO-FIAT

Motor : 8365.26.534

Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity

min. l/h : 260

Tolerance l/h : ± 20.0

Test nozzle holde assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.55

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.25

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 126.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.50
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 126.0
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 100.0

RATED SPEED

rack travel mm : 8.20
Rated speed rpm : 1075
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1110
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1120

LOW IDLE

control lever
position degree : 79.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 4.00

Testing:

Rated speed rpm : 450
rack travel mm : 4.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 9.25
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 9.30
Tolerance mm : + 0.10

Rated speed rpm : 320
rack travel mm : 9.80
Tolerance mm : + 0.20

Rated speed rpm : 450

rack travel mm : 9.30
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 9.30
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.50
Tolerance mm : \pm 0.15

Rated speed rpm : 500

Pressure hPa : 425
rack travel mm : 8.90
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 119.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 77.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 8.20
Rated speed rpm : 1075
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.50
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 85.0
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 20.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.09.96
Test oil : ISO 4113

Combination No. : 0 402 676 824

Injection pump
Pump designation : PE6P120A320RS7428
EP type number : 0 412 626 959

Governor
Governor design. : RSV300...900P1A594
: -1
Governor no. : 0 421 833 477

Cust. part No. : 11031889 P04 v.06.96

Customer-spec. information
Customer : VCE
Motor : TD 122 KIE
Power KW : 284.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 +13 078

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 10.60
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 292.0

cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 330

Rack travel in mm : 3.90
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 45.0
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure

hPa : 1500

Del. quantity

cm³/1000 strokes : 292.0

cm³/1000 strokes : + 1.0

Check tolerance

cm³/1000S. : + 4.0

Spreed

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 11.0

CONTROL LEVER

control lever

position degree : 50.0

tolerance degree : + 4.0

control lever

position degree : 107.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.60

Rated speed rpm : 935

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1005

Tolerance 1/min : + 15

rack travel mm : 0.80

Tolerance mm : + 0.50

Rated speed rpm : 1130

LOW IDLE

control lever

position degree : 82.0

tolerance degree : + 4.0

control lever

position degree : 25.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 330

rack travel mm : 3.40

Testing:

Rated speed rpm : 330

rack travel mm : 3.90

Tolerance mm : + 0.10
rack travel mm : 2.00
Rated speed rpm : 420
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 10.60
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 10.10
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 10.60
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.40
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 2.90
Tolerance mm : + 0.20

Pressure hPa : 260
rack travel mm : 0.25
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 275.0
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spreed

M23

cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 192.0
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 9.60
Rated speed rpm : 935
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 145.0
cm3/1000 strokes : + 15.0
Check tolerance
cm3/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 330
Del. quantity
cm3/1000 strokes : 45.0
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0
Spreed
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.09.96
Test oil : ISO 4113

Combination No. : 0 402 846 062

Injection pump
Pump designation : PE6P120A320RS8024-1
EP type number : 0 412 826 029

Governor
Governor design. : RQV250...1100PA1072
 : -4K
Governor no. : 0 421 815 978

Cust. part No. : 477951-P05 v. 11.95

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD74 EU
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 7.60
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
 : 4

Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.50
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 189.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.80
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 23.0

cm³/1000 strokes : +- 2.5

Check tolerance
cm³/1000S. : +- 5.0

Spread
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.33
Tolerance mm : +- 0.25

Rated speed rpm : 1176
guide sleeve
travel mm : 10.15
Tolerance mm : +- 0.25

Rated speed rpm : 733
guide sleeve
travel mm : 5.39
Tolerance mm : +- 0.25

Rated speed rpm : 307
guide sleeve
travel mm : 2.29
Tolerance mm : +- 0.25

Rated speed rpm : 357
guide sleeve
travel mm : 2.97
Tolerance mm : +- 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 3.22
Tolerance mm : +- 0.25

Rated speed rpm : 1390
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1290

Rack travel in mm : 7.50
Tolerance mm : +- 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure

hPa : 1500

Del. quantity
cm³/1000 strokes : 189.0

cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 66.0
tolerance degree : +- 4.0

control lever
position degree : 119.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.50
Rated speed rpm : 1165
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1250
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

control lever
position degree : 19.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.80
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 6.70

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.50
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 12.30
Tolerance mm : \pm 0.10

Rated speed rpm : 300
rack travel mm : 10.50
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500
rack travel mm : 12.50
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 7.75
Tolerance mm : \pm 0.10

Rated speed rpm : 1100

Pressure hPa : 750
rack travel mm : 4.20
Tolerance mm : \pm 0.20

Pressure hPa : 200
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 225.0
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000s. : \pm 5.0
Speed
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000s. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 115.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.50
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000s. : \pm 5.0
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.09.96
Test oil : ISO 4113
Combination No. : 0 402 846 063
Injection pump
Pump designation : PE6P120A320RS8024-1
EP type number : 0 412 826 029
Governor
Governor design. : RQV250...1100PA1072
 : -5K
Governor no. : 0 421 815 977

Cust. part No. : 477952-P05 v. 11.95

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD74 EU
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 089
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 7.60
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 13.60
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 211.0
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : + 5.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.33
Tolerance mm : + 0.25

Rated speed rpm : 1176
guide sleeve
travel mm : 10.15
Tolerance mm : + 0.25

Rated speed rpm : 733
guide sleeve
travel mm : 5.39
Tolerance mm : + 0.25

Rated speed rpm : 307
guide sleeve
travel mm : 2.29
Tolerance mm : + 0.25

Rated speed rpm : 357
guide sleeve
travel mm : 2.97
Tolerance mm : + 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 3.22
Tolerance mm : + 0.25

NO1

Rated speed rpm : 1390
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1290

Rack travel in mm : 7.50
Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 211.0
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 68.0
tolerance degree : + 4.0

control lever
position degree : 120.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.60
Rated speed rpm : 1165
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1260
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

control lever
position degree : 20.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.80
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 6.70

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 13.10
Tolerance mm : \pm 0.10

Rated speed rpm : 300
rack travel mm : 11.50
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500
rack travel mm : 13.60
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 7.75
Tolerance mm : \pm 0.10

Rated speed rpm : 1100

Pressure hPa : 885
rack travel mm : 5.50
Tolerance mm : \pm 0.20

N02

Pressure hPa : 190
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 248.0
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 115.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.60
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.10.96
Test oil : ISO 4113
Combination No. : 9 400 085 343
Injection pump
Pump designation : PES6A95D410RS2795
EP type number : 9 400 084 020
Governor
Governor design. : RQV300...1400AB1065
 : -18L
Governor no. : 9 420 080 278
Cust. part No. : 0220747302

Customer-spec. information
Customer : MBB
Motor : OM 366
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

N04

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 9.95
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 69.5
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 7.90
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 11.0
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.55
Tolerance mm : + 0.05

Rated speed rpm : 750
guide sleeve
travel mm : 4.20
Tolerance mm : + 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 69.5
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : + 4.0

control lever
position degree : 110.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 8.90
Rated speed rpm : 1465
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1560
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1680

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

control lever
position degree : 21.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.90
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 555

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 9.95
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 9.95
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 250

Check
speed 1/min : > 80
Check
speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 51.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

BREAKAWAY

Rack travel in mm : 8.90
Rated speed rpm : 1465
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 84.0
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 11.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.10.96
Test oil : ISO 4113

Combination No. : 9 400 087 464

Injection pump
Pump designation : PES6P120A720LS7257
: -10
EP type number : 9 400 087 086

Governor
Governor design. : RQV300...1050PA1029
Governor no. : 9 420 080 325

Cust. part No. : 0220746202

Customer-spec. information
Customer : MBB
Motor : OM 447 LA
Power KW : 257.6

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 237.0
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.50
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 17.0
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 6.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : \pm 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : \pm 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : \pm 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.55
 Tolerance mm : \pm 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
 Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000

N03

Del. quantity
 cm³/1000 strokes : 237.0
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 4.0
 Spreed
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 55.0
 tolerance degree : \pm 4.0

control lever
 position degree : 120.0
 tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.00
 Rated speed rpm : 1095
 Tolerance 1/min : \pm 5

rack travel mm : 4.00
 Rated speed rpm : 1165
 Tolerance 1/min : \pm 15

rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 82.0
 tolerance degree : \pm 4.0

control lever
 position degree : 17.0
 tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.50
 Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.05
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.35
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 2.35
Tolerance mm : \pm 0.15

Pressure hPa : 350
rack travel mm : 0.80
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

N09

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 227.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 126.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 190.0
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 sirokes : 17.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.10.96
Test oil : ISO 4113
Combination No. : 9 400 087 475
Injection pump
Pump designation : PES5P120A720LS7280
EP type number : 9 400 087 087
Governor
Governor design. : RQV300...950PA1029
: -6
Governor no. : 9 420 080 360
Cust. part No. : 0240742602

Customer-spec. information

Customer : MBB
Motor : OM 449 LA
Power KW : 220.6

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 4.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 21.00
Firing order : 1- 3- 5- 4- 2
Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 13.45
Tolerance mm : + 0.05
Del. quantity
cm3/1000 strokes : 245.0
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Speed
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
Rated speed rpm : 300

Rack travel in mm : 5.30
 Tolerance mm : +- 0.10
 Del. quantity
 cm3/1000 strokes : 12.0
 cm3/1000 strokes : +- 3.0
 Check tolerance
 cm3/1000S. : +- 6.0
 Spreed
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : +- 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : +- 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.45
 Tolerance mm : +- 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1300

Del. quantity
 cm3/1000 strokes : 245.0
 cm3/1000 strokes : +- 1.0
 Check tolerance
 cm3/1000S. : +- 4.0
 Spreed
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 52.0
 tolerance degree : +- 4.0

control lever
 position degree : 117.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.50
 Rated speed rpm : 985
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1125
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 83.0
 tolerance degree : +- 4.0

control lever
 position degree : 18.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.30
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.45
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.45
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 13.45
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 2.45
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : 1.10
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 241.0
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 121.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 12.50
Rated speed rpm : 985
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 04.10.96

Test oil : ISO 4113

Combination No. : 9 400 087 483

Injection pump

Pump designation : PES5P120A720LS7280

EP type number : 9 400 087 087

Governor

Governer design. : RQV300...950PA1029

: -5

Governer no. : 9 420 080 358

Cust. part No. : 0250744402

Customer-spec. information

Customer : MBB

Motor : OM 449 LA

Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly

: 1 688 901 105

Opening pressure
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.65

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.25

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 202.5

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Speed

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.10
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 11.0
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 6.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : \pm 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : \pm 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : \pm 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.55
 Tolerance mm : \pm 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120
 Rack travel in mm : 16.50
 Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 202.5
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 4.0
 Spreed
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 52.0
 tolerance degree : \pm 4.0

control lever
 position degree : 117.0
 tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.20
 Rated speed rpm : 1005
 Tolerance 1/min : \pm 5

rack travel mm : 4.00
 Rated speed rpm : 1115
 Tolerance 1/min : \pm 15

rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 80.0
 tolerance degree : \pm 4.0

control lever
 position degree : 15.0
 tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.10
 Tolerance mm : \pm 0.10

Rated speed rpm : 100
 CRT mm min. : > 8.00

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 12.25
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.25
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 2.00
Tolerance mm : \pm 0.10

Pressure hPa : 360
rack travel mm : 0.55
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 206.0
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Aneroid pressure

hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 116.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 11.20
Rated speed rpm : 1005
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 250.0

cm³/1000 strokes : \pm 10.0

Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 11.0

cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.10.96
Test oil : ISO 4113

Combination No. : 9 400 087 484

Injection pump
Pump designation : PES5P120A720LS7280
EP type number : 9 400 087 087

Governor
Governor design. : RQV300...1050PA1114
Governor no. : 9 420 080 361

Cust. part No. : 0240747602

Customer-spec. information
Customer : MBB
Motor : OM 449 A
Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 194.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.30
 Tolerance mm : +- 0.10
 Del. quantity
 cm3/1000 strokes : 12.0
 cm3/1000 strokes : +- 3.0
 Check tolerance
 cm3/1000S. : +- 6.0
 Spreed
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : +- 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : +- 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.55
 Tolerance mm : +- 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure
 hPa : 800

N20

Del. quantity
 cm3/1000 strokes : 194.0
 cm3/1000 strokes : +- 1.0
 Check tolerance
 cm3/1000S. : +- 4.0
 Spreed
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 55.0
 tolerance degree : +- 4.0

control lever
 position degree : 121.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.10
 Rated speed rpm : 1110
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1170
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 82.0
 tolerance degree : +- 4.0

control lever
 position degree : 17.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.30
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 8.50

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.30
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 13.10
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 12.80
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 360
rack travel mm : -1.50
Tolerance mm : \pm 0.10

Pressure hPa : 500
rack travel mm : -0.50
Tolerance mm : \pm 0.10

Pressure hPa : 1080
rack travel mm : 0.25
Tolerance mm : \pm 0.05

Pressure hPa : 1200
rack travel mm : 0.60
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 250

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 196.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 220.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 121.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 11.10
Rated speed rpm : 1110
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
cm³/1000 strokes : \pm 10.0

Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 12.0
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Speed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.10.96
Test oil : ISO 4113
Combination No. : 9 400 087 485
Injection pump
Pump designation : PES5P120A720LS7280
EP type number : 9 400 087 087
Governor
Governor design. : RQV300...950PA1029
: -7
Governor no. : 9 420 080 363
Cust. part No. : 0250744502

Customer-spec. information

Customer : MBB
Motor : OM 449 LA
Power KW : 220.7

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 4.65
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 21.00
Firing order : 1- 3- 5- 4- 2
Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 13.75
Tolerance mm : +- 0.05
Del. quantity
cm3/1000 strokes : 263.5
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000s. : +- 4.0
Speed
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000s. : 9.0
Rated speed rpm : 300

Rack travel in mm : 5.30
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 17.0
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : + 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : + 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : + 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.55
 Tolerance mm : + 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1300

Del. quantity
 cm³/1000 strokes : 263.5
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 52.0
 tolerance degree : + 4.0

control lever
 position degree : 117.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.70
 Rated speed rpm : 995
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1125
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 83.0
 tolerance degree : + 4.0

control lever
 position degree : 18.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.30
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.75
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.75
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 13.75
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 2.85
Tolerance mm : \pm 0.15

Pressure hPa : 480
rack travel mm : 0.90
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 256.0
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 121.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 12.70
Rated speed rpm : 995
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 17.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet